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ABSTRACT

The theme of the 1970 Congress of the International Council on Health, Physical Education, and Recreation (ICHPER), where the papers in this collection originated, was "New Endeavors in Health, Physical Education and Recreation." After the opening and the presidential address, there are three papers listed under the heading "General:" "How Standard is your Deviation;" "The Need to Popularize Physical Activities;" and "Physical Education--Tool or Toy?" Under the heading "Facilities" is the paper "The Development of Sports Facilities and their Equipment." The next section, "Research," includes papers on kinesiology, personality and perceptual factors in motor performance, gross motor skills to predict and avert reading failure, physical education for women, and the application of physical education research results to practice. The next section is devoted to papers from the "Eighth Conference of the Australian Physical Education Association." The remaining headings for groups of papers are as follows: "Recreation and Outdoor Education;" "Innovative Experiences;" "Health Education Seminar;" "Australian Sports Medicine Federation Abstracts;" and "Looking Ahead." The collection concludes with the closing address of the Congress and 1970 ICHPER Resolutions. (JA)

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ED109117

The Thirteenth International Congress of the International Council on Health, Physical Education, and Recreation

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SYDNEY,

AUSTRALIA

July 30-August 3, 1970

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OPENING ADDRESS

SAMUEL W. COHEN

Deputy Vice-Chancellor,
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If we leave to the biologists and the anthropologists the question where we come from, and if we leave to the theologians the question where we go from here, we have at our own disposal the question of the present—what Carlyle called "this poor, miserable, hampered, despicable Actual, wherein thou even now standest". It is out of this poor miserable Actual that one has to make the good life.

In this business of helping people to live the good life, right here and now, what does your learning have to offer? In what ways are your concerns the concerns of a liberal education, because that is the only kind of education worth thinking about. By a liberal education I mean that education which liberates and frees a man's mind—which renders him a free, conscious, responsible person—an independently operating intelligence—this is the liberating effect of a liberal education. Does your learning deal in these things? Let me recount an experience and then venture a comment.

Many years ago—I am now old enough for the phrase "many years ago" to have real meaning—I was one of a group taking part in a study tour through Denmark. We spent most of our time visiting and observing the famous—deservedly famous—Danish folk high schools. Among those we visited and lived in for a short time was the famous physical education folk high school at Ollerup under the charge of Niels Bukh. The place was magnificent—the buildings both beautiful and functional, the setting glorious. One evening during our stay, Niels Bukh arranged for the whole school to stage a demonstration for us in the enormous auditorium. The whole school, with breathtaking precision went through Bukh's table of exercises—we saw the glorious flowing movements under the personal direction of the great man.

Now for my comments. I may be wrong—perhaps at the time my immaturity led me to a wrong interpretation—perhaps my background understanding was too imperfect. Impressive as the performance was, it seemed to me that there was in it nothing of individual humanity. What I saw seemed to be not the sum total of many individual humanities at work, but the subordinating of individual humanities for the sake of a mass effect.

Another thing that has frequently given me concern is summed up in Brian Coghlan's intriguing phrase—the problem of reconciling the needs of the sporting virtuosi with those of the short-winded rank and file. In my young days, if you were not one of the sporting virtuosi, then as far as physical education was concerned you just didn't rate. I am satisfied that much more needs to be done for the short-winded rank and file. Whether instinctive blind faith was at work, or whether there lurked in

my unconscious some of the ideas implanted there years ago by my physical education colleagues, I do not know; but for whatever reason, I have insisted that, in my own still new university, while providing the sporting virtuosi with first-rate sports fields and equipment, the short-winded rank and file are to be provided for. in modest facilities built close to the academic centre where they can play their squash or work on equipment of various kinds, without having to win a place in one of the representative teams. I am delighted that already we have to build more squash courts and add some more bays to the first stage of our gymnasium.

Some of us plain men are sceptical about organized exercise. Perhaps my own scepticism reflects the attitude of a senior colleague of mine who died recently at a very ripe old age—right up to the end he was healthy and active and alert. When I was a young academic very much in awe of the great scholar, he used to warn me against the dangers of exercise—but when I asked him how he came to be so obviously fit, he would tell me that it was because of the exercise he got acting as pallbearer at the funerals of his athletic friends.

For many of my generation life has lost its serenity. We are doing jobs that are complex and demanding, and are becoming more so every day. Can you give us back the clear-eyed, wholesome view of the world that we had when we were young? Can you help us to the inner calm and feeling of physical ease and well-being so that we can cope with the unremitting demands made on us and store up the inner resources to enjoy the last part of our lives? As usual, the poets say things more clearly than anybody else—and that is the main reason why everybody should study poetry—you recall Robert Browning's Rabbi Ben Ezra—

> "Grow old along with me!
> The best is yet to be
> The last of life, for which the first was made."

When one is young, the inner calm and the feeling of well being are there almost as a divine gift—we revel in physical activity and movement which come as easily and naturally to us as breathing. But then we get caught up in the rat race. When it is too late, we stop and take a sober look at the way we live—and what we see is not pleasant to contemplate. In this country of great open spaces, we live huddled together in congested cities—we pollute our atmosphere, we are slowly choking our environment and ourselves.

You know all this better than I do. You know the statistics on the increase in the incidence of heart disease. You have all the evidence on the desperate plight of those who do not know how to use the greatly increased amount of leisure time modern technology is now making available. You know all about the effects of urbanization and of overcrowded living conditions. You know how extensive is the scope of physical education and of recreation. You know that there are no age limits to those who can benefit from your knowledge and skills. Get all that knowledge to work.

You professionals know how to make physical well being a lifelong thing. You are yourselves doing this. You are all examples of your own

teaching. But how do you get others to make it a lifelong thing? Do you do it by inculcating good habits and attitudes into young people so effectively that the habits and attitudes will stay with them all their lives? Ideally, of course, that should happen. But I am sceptical enough to think that it doesn't happen that way very often in any area of education. How many people carry through the whole of their lives the habit of reading good literature which they were introduced to at school? For most people, every kind of learning needs reinforcing regularly. It is too easy to let things slip. Perhaps those business organizations that require their senior executives to have physical checks from time to time are right. Perhaps we need to be required to keep ourselves fit physically just as we ought to be required to keep ourselves fit mentally and professionally. Too many professional qualifications are lifelong licences to practice which hold good no matter how a man's capacity deteriorates while his knowledge falls farther and farther behind. I shall come back to this in a moment.

You people have expert knowledge of some of the requirements of the good life. The research and scholarship represented in this gathering, if put into action on a wide enough scale, could transform and enrich the lives of many people. Unfortunately, our education is still too much dominated by the medieval notion of book learning. Many of us who wouldn't dream of driving a car five years old will cheerfully allow our children to suffer an education that is fifty years old. Many of us who wouldn't wear last year's fashions will not question last century's education for our children.

If only the energies of young people which now go into demonstrating and protesting about Vietnam and such issues could be channelled into vigorous protests about many of our tragically unchallenged ideas and practices in education—if only they could be persuaded to hold protest marches to demand the right to an education that will help them live the good life. If only they would bring their pressure to bear on those who defile our environment and make it unfit for human life.

I hope that out of this congress will come vigorous and effective action. Carlyle told us that "conviction is worthless till it convert itself into conduct. . . . Doubt of any kind cannot be removed except by Action". In this country there is already plenty of action; we are doing much in physical and health education and recreation.

I see here today people to whom I want to pay the highest possible tributes for what they have achieved. I see here, for instance, Gordon Young—a man of such clear vision, driving energy and enthusiasm that he drives everybody nuts who works with him—but he knows what he's after. Perhaps I embarrass you, Gordon—but it's a duty to embarrass him. I remember how, thirty years ago, Gordon stumped the country burning with energy and enthusiasm, stirring in teachers and the public a realization of a new world—a new range of concepts in physical and health education. Today the results of his work are there for all to see. There are here today physical educationists who were once my colleagues and, I hope, are still my friends; when I worked with them I learned that it was sometimes wise for an administrator not to enquire too closely

into how they got things done. Physical educationists tend to work in their own somewhat dashing ways, and I learnt to let them have their heads and stand back. They have accomplished much — just as their counterparts in other parts of Australia and in other countries gathered here today have accomplished much. In this country we have nothing to apologize for in what has been achieved in physical and health education and in recreation. We need not be modest or ashamed at what we have done. Perhaps we should be ashamed at what we have *not* done—but that is not the fault of the physical educationists. They have achieved all that could have been achieved, and if they have not succeeded in persuading others to stake them to more, that is not for want of trying.

We are not doing enough, and we are not following through with the older groups the excellent work we are doing with young people. I hope that you will discuss the strategies of educational decision making. You have an excellent product to sell. I hope you will not spend all this Congress discussing the product; I hope you will spend a lot of time deciding how to go out and sell it and, if necessary, it will have to be a hard sell—an aggressive sell. If necessary, you will have to frighten people, to blackmail them, into buying your product. I am afraid that in these days many important decisions are made only in response to pressure and, sometimes, as a reaction to fear. You must exploit what the psychologists have to teach about how to influence people. You will have to campaign—vigorously, and even unscrupulously—to get adequate provision for what you have to contribute to helping people live the good life. The end will justify the means. Remember that it is the squeaky wheel that gets the oil—don't just squeak, shout!

You must study the psychology and the politics of decision making. The Minister could tell you that not all decisions that come out of a Cabinet Room are the result of the application of pure theory and dispassionate calm analysis of carefully collected data. Many decisions are the result of pressures—and often that is right. That is the way of democracy. Policy decisions must reflect what most people consider to be right and beneficial. In that sense, honest pressure groups are the essence of the democratic process. Properly and intelligently organized, they can be the means of focussing attention on important public needs and of clarifying political thinking and decision making. The trouble with so much of the public demonstrating and protesting we have witnessed lately in all parts of the world is that it has rarely reflected what most people want, nor is it usually constructive.

So then, in conclusion, let me try to repeat the central thought of a puzzled man on matters which are doubtless crystal clear to all the experts here. My central puzzlement concerns how to prevent any form of education--and physical education can be no exception—how to prevent education degenerating into technique, because, as Sir Richard Livingstone said a long time ago, "the life tends to go out of all subjects when they become technical . . . so easily can education decline into routine and mechanism". The central issue seems to me to be this: how to make your area of education a warmly humanizing, liberating experience which will stay with people for the whole of their lives.

PRESIDENTIAL ADDRESS

KLAAS RYSDORP

President, ICHPER

The Congress Theme

OUR Congress theme is "New Endeavours in health, physical education and recreation".

It makes sense to ask at the beginning of the Congress: Is it necessary to speak about *new* endeavours? We, professionals in physical education, have we not known for a long time what we want in physical education, what we need, and what we have to do? Is it our real intention to come to *new* endeavours? Are our old ones not good enough? Do we always have to change? Do we not make opportunities for superficiality if we have the attitude of steadily renewing our work? Is that not only an attempt to remain fashionable?

This objection leads to the next question: *What* do we want, or *what* do we have to change? And why?

Physical education is the educator's encounter with the pupil in the field of movement and body-experience. Exercises, games and dances have a certain value in themselves, but essentially they are only the constituting factors in the field of intercourse in physical education. The essence of physical education asks for the extent to which the educator within this field of activities is able to transfer his educational intentions to the pupil. The essence of physical education asks also for the extent to which the pupil works up the action of this intercourse in himself so he might approach *his* state of adulthood.

In an earlier ICHPER-Congress I characterized the state of an adult as creative and regulating independence.

In English you generally speak of an educator and a pupil. But since it is generally agreed that "educator" is a wider term than "teacher", there is a need for a term wider than "pupil". The English educationist Adams has suggested the word "educand" to fill the blank, meaning "the person to be educated". And James S. Ross says: "It might be well in the interests of clear thinking to follow his lead."

I do not make this problem of English terminology a serious question. It is not up to me, I am hardly able to speak any understandable English. I only mention the question to show that physical education is more than instruction. It *has* to do with teaching, of course; but in a deeper sense, physical education is searching chances in the intercourse, to help the educand on his way to creative and regulating independence.

Well, here we get the answer to our question: Why should we change our work?

The educational encounter concerns two persons: An independent, experienced and mature man and a youngster who has to develop himself to a state of independence, experience and maturity. These two persons, educator and educand, are not closed entities in the world, but they exist as entities as parts of the world. Each of them has his own world of experience. This world is always changing. The world of 1970 is different from the world of 1930; and people of 1970 (youngsters and older ones) are different from the people of 1930. Therefore the situation of encounter in physical education has changed. The world and people change, constantly renewing themselves. So education has to change too. It is impossible *not* to change. And so it is with physical education.

Now the question: What changes?

An opening address has to be brief, therefore my answer must be concise:

1. The body-image changes.
2. The motor-experience changes.
3. The style of moving and the attitude change.
4. The supply of subject-matter (exercises, games, dances) changes, as well as the motivation to find something attractive or not.
5. Also the aims and objectives are not the same through the years.
6. And our knowledge about effects of exercises, didactical and technical methods expands.

If we want to keep pace with the course of events, we constantly have to focus on new endeavours in physical education, and also in health and recreation.

It is not the time now to say much about it. What I have said about physical education, however, applies also for health and recreation. I only give one single example of each, to show you what I mean.

In the industrial parts of the world a whole new chapter in health education is to be written: the air-pollution. A new endeavour in health education for the whole world is the hygiene of the environment. Is the world still worth living in, is it even possible to live in a world where all oceans are dead?

Concerning recreation, not only the automation of the society asks attention, owing to the changing labour-pattern and the leisure-expansion. The urbanization also asks attention: our alienation from our primary circumstances of life, from nature, climate, day-and-night-rhythm.

There are people who try to avoid our stone-steel-and-glass-culture through conscious-widening by means of drugs; but a healthier and more adult way (in the sense of creative and regulating independence) is outdoor-education, which here and there starts to be a new attitude in the education-system.

Health, physical education and recreation are corresponding factors in education, and new endeavours are constantly necessary.

12

Worldwide Work

ICHPER is glad that we have our Congress in Australia, a country that in the same time is a continent, as Europe for example, the part of the world where I come from.

Australia is very far away; not for the Australians, but for the Europeans.

Ancient people always had the idea that they lived in the centre of the world. The classic Greeks had the idea that Delphi was the centre of the world; for the Jewish people it has been Jerusalem; the Chinese have found it in Peking; the Indians planted their totems in the middle of their settlements, and they estimated that to be the centre of the world—of *their* world.

Europeans speak of the Near East, the Far East and the Far West. But it is only near or far, east or west from Europe. So in the time that these terms arose, Europe was thought to be the centre of the world, the centre of the structuring lines of the world.

All men are inclined towards the attitude of taking their own positions for the centre of the world. All people plant their totems, and structure the world from there.

But ICHPER is world-wide. It plants no totem, but finds its way and home all over the world. ICHPER is a platform where everybody in the world who loves health, physical education and recreation, has the opportunity to announce his new endeavours.

This platform is transportable. It is now here, in Sydney; and on this platform will our Australian colleagues meet, to have their 8th National Conference. ICHPER is happy to deal with Australian colleagues.

There is a condition, however, to make world-wide work fruitful. ICHPER must not be an announcements- and statements-platform only. We must learn more and more to *listen to each other.*

It happens too often that somebody hears a person speaking, and says: "Most interesting", without real listening. Afterwards he goes his own way and works in his own manner, having heard nothing. We must learn to open our minds for each other. *Real* listening is difficult. Perhaps we have to learn more listening than speaking, also, in this Congress.

We must also learn to answer. Our answer must be related to what has been said. Discussion is not only a skill, it is an attitude. The informal discussions between the Congress participants provide many opportunities to learn this art.

Consequences

What are the consequences of the fact, that ICHPER is world-wide?

The ICHPER position has a clear disadvantage. Its work is less visible and less surveyable than, for example, the work of a national or regional organization. This is the reason why outsiders, also outsiders within the professional area, easily forget or do not observe the ICHPER-

contributions in our field; but the world-wide position has also enormous advantages. I mention:

1. ICHPER has a survey about the status of our profession and the developments in the world, and through this ICHPER is able to promote a broader vision and a vision on the future in health, physical education and recreation.
2. Strong countries can support weak ones, and the so-called strong countries may learn that the so-called weak ones sometimes have a freshness that the strong countries have lost.
3. The participants in the ICHPER-activities learn the relativity of their own opinions. There are so many opinions, so many solutions, circumstances, methods in the world which you do not know at home. This may teach us that people can be happy in a way which we did not learn at home, and that our profession can be served through methods, techniques and organization-schedules which are not quite the same as in our countries.
4. In this way we learn mondial thinking, and we better prepare ourselves for the future development of the world. For the world becomes smaller and smaller in our experience, because the area in which we live and move becomes larger and larger.

Activities

ICHPER is an independent international member of WCOTP. Through this it has a direct contact with all teaching professions.

But ICHPER has also more international relations. In a tripartite committee we work together with ICSPE and FIMS. During the Olympic Games in Munich both the UNESCO-related organizations ICHPER and ICSPE will work together to organize the UNESCO-day in the scientific Congress.

IAPESGW and AIESEP are independent international ICHPER-members. There is a new contact with IAKS. And there is a good hope that in the future the contacts between ICHPER and FIEP will improve.

Further, we have good contacts with regional organizations in Asia, Africa and America. In addition, we have sponsored different international meetings.

ICHPER has conducted international research about the school curriculum, teacher training and the status of teachers of physical education. This has been done in cooperation with UNESCO, and is a real contribution to international knowledge of these items.

Everywhere ICHPER has its Congress we dedicate a whole day to health education. Now ICHPER prepares practical guides on swimming-soccer- and volleyball-teaching, with many designs and a very brief text, intended for countries where only few materials are available for teacher training.

This year we published the report about the ICHPER-case study on physical education in Chile, and lastly a working paper about facilities

and equipment in schools, the ICHPER-contribution to the UNESCO-expert meeting in Gothenburg, Sweden. Our best-seller is still always the ICHPER-Worldwide Book of Games and Dances.

ICHPER has four periodical publications: the ICHPER magazine *Gymnasion*, the ICHPER Bulletin, the ICHPER *Asian Journal* and the Congress proceedings.

These are some of the highlights of what we are doing.

Epilogue

We shall be together here in Sydney for five days. We shall speak, listen, discuss. We shall enjoy the good organization of our Australian colleagues. We shall enjoy the Australian hospitality and the magnificent city of Sydney.

Through all these we shall strengthen:

- our love of health, physical education and recreation for the youth in our countries and in the world;
- our dedication to, and our knowledge of, our profession;
- our dedication to our world-wide platform ICHPER.

I finish with a word from our Honorary President, Dorothy Ainsworth, for it expresses by own belief: "It is my belief that ICHPER has the opportunity and the ability to move always forward toward our goals, even as they change and grow over the years, and to do this through the international fields of health, physical education and recreation."

With these words I open the Congress, and I wish you good, new endeavours.

"How Standard is your Deviation?"

ALBERT W. WILLEE

Director of Physical Education,
University of Melbourne, Australia

The Congress Theme

THE word "New" suggests that in the immediate future there may well be a revolution, but experience and history show that educational changes evolve through gradual processes and not by sudden revolution. "New" might suggest that we need to ignore old boundaries, or to seek and set new ones which may lie either within or beyond the old. Both are necessary. There are many unsolved problems of long standing to some of which no solution has been found, and others for which no solution has, in fact, been sought. In some cases, solutions and attempts to provide solutions vary from country to country. It is essential that solutions be sought which will be in accord with local conditions.

Unsolved problems include pathological outcomes arising from improperly applied activities, sometimes conducted by enthusiastic, unpaid amateurs, by teacher-appointed schoolboy "leaders", but all too often by highly paid, untrained, unskilled "experts" in commercial health studios. The relationships between competitive sports and physical education, betwixt games playing and citizenship, international co-operation, appointment of specialist teachers at primary level, a common terminology, play-dance games type entertainment programmes, as opposed to systematic education, these are some of the problems and confusing concepts which have been with us for years.

The most recent and most pressing problem—hypokinetic disease—is, of course, not merely a matter of technology taking the muscle out of work and play, not only a question of modern man forced into the role of inactive machine watcher and manipulator, the tense, strained knob twiddler and dial observer; the problem is compounded by the parallel advances in pharmaceutical phenomena. Now there is readily available a variety of pills and potions to accelerate, decelerate, reverse or negate every human biological function. The advancement of knowledge is leading to the retardation and ruination of health and fitness.

The use of "New Endeavours" in the theme strengthens my conviction that we should here be concerned with re-directing our attention to perennial problems. In looking to the future we can ignore neither the past nor yet the present.

It is in order, perhaps, to say a few words too about the title of my talk. At the present time we live in a changing scene. This is erroneously called a permissive age. It is more likely that future historians and historiographers will label this the age of selfishness, characterized by lack of self-discipline, self-gratification, self-indulgence and the adoption of anarchical democratic procedures wherein youth confers on itself instant experience and the wisdom denied their elders. We live, indeed, in an age where knowledge is mistaken for wisdom and authority capitulates to youthful arrogance.

The image of the human being and of the physical educator is changing, and it is not without significance that we may feel the need to take stock and consider what deviation may be thought of as standard.

Aristophanes, for example, in his description of the young men of his day, included the statement that "if your mode of life is up to date, you will have a weak body, a colour sickly pale, narrow shoulders, an immense tongue"; but he made no mention of sideburns, of long, limp, lank male hair, of tatty jeans or of the unwashed body. What is a deviate? How much deviation can be considered as standard? These are matters of some importance. It may be that at this time the clean-cut, upright, clean-looking physical educator may be changing.

Our first duty is to recognize that there are problems associated with physical education. With full recognition, solutions may be sought.

Physical Education — The Process

The concept of physical education as a process is imperfectly understood by non-specialists, and its wares are too often decried by misguided physical educators themselves, who conclude that the denigration of their working tools and wares automatically bestows academic respectability upon the discipline and upon themselves. Some physical educators, as they grow older, come to regard the teaching of skills—that which attracted them to the profession—as being less dignified than talking about skills.

For donor or recipient, for master or pupil, the physical education process must be understood as education of the whole man by means of physical procedures and experiences. An education through the physical means subjecting someone or being subjected to a varied host of experiences centred around human movement.

Man is a biologically integrated being, totally involved in whatever he may be doing. Activities differ, not in kind, but only in emphasis upon the intellectual or the physical. When you are involved in a game, whilst running at top speed, with brain working like a computer to initiate changes in direction and speed in relation to other team-mates, to the ball, to opponents, constantly receiving, interpreting visual, auditory and tactile stimuli, it might be very difficult to decide where, in fact, the emphasis,

intellectual or physical, was at that particular time. For the individual, such a situation is further complicated by emotions such as excitement, fear, anger and distractions like the roar of the crowd. On the other hand, in an activity such as "push-ups", the intellectual involvement is limited and becomes, perhaps, important only when endeavouring to do one more push-up than one feels, or thought, to be possible.

The process of physical education consists of more than teaching or acquiring skills. Whilst it is true that a child may need to be taught to kick effectively, to strike, to climb, twist and turn under a variety of conditions, push and pull; that child must also learn that such skills are appropriate for employment only under certain conditions, at appropriate times and for good reasons.

Physical Activity and Healthy Living

Our first endeavour in this domain, the first problem, is to convince the members of our own profession that it is in fact *our responsibility* to lay the foundation for an appreciation of the need for physical activity as an essential part of healthy living. In this connection it is important to welcome the assistance of the medical profession, the National Heart Foundation, and any other allied body interested in the solution of this particular problem, without, of course, allowing our responsibility to be usurped, especially by late-comers to the field.

It is our responsibility to educate the general public, professorial boards, industrial leaders, trade union executives and their members, to appreciate the fact that physical activity is an essential part of healthy living. Our leaders must be convinced that one of the finest investments that industry and commerce can make is an investment in the health and fitness of their workers.

At the same time we have to ensure that there is an understanding amongst all these publics and all these peoples that whilst the means in our profession are physical, the outcomes, properly sought and planned for, are indeed educational, involving and affecting the "whole man". It must be emphasized that mere participation is not enough to ensure desirable outcomes. These must, in fact, be planned for; programmes and activities must be conducted on the right lines if the most is to be made of the facilities and the money that is made available for their conduct. This, in turn, implies trained leadership. It would indeed be wonderful if, when we had convinced all these people, they would, in fact, then take action. But it is a truism that knowledge and understanding do not, of themselves, necessarily mean a modification in behaviour.

Public Involvement

Thus, the second endeavour which ought to be tackled, and tackled as a separate problem, is that of achieving wide-spread community involvement.

If children leave school without a well-liked, healthy, recreational activity, without an appreciation of the importance of regular, vigorous, physical activity, and an understanding of such activity in relation to the

other essentials for healthy living, then indeed this is a reflection on our programmes. We may cry, and we should continue to cry out, that this is due to lack of qualified staff, inadequate facilities and ungenerous time-table allocation. We do, however, need to examine the proposition that perhaps the best possible use is not being made of the limited staff and facilities at our disposal. It is in this area that school and community needs may perhaps be best served in the short and long term by closer liaison and common usage of personnel and resources.

It is pertinent, too, at this juncture to ponder the possible hazards of "life-time" and "life-long" sports movements. To stress inactive activities at a developmental stage when vigorous activity is a biological necessity, is unnatural and likely to be unprofitable, except for the manufacturers and vendors of the paraphernalia of inactive recreational pursuits. By all means let us have broad-based programmes and, if it so happens that the child becomes adept in a comparatively inactive recreation, efforts must be made to find something of an active nature which will also interest that individual. Such a child may be encouraged, perhaps, to understand that his performance, even in an inactive pastime, may well be enhanced if he is more efficient *in toto*; the whole is more than the sum of the parts; but the parts need to be in good working order.

At school, habits may well be established before full understanding is either possible or desirable. At a later stage, reasons may be given and values established. Sheer enjoyment may well be the initial motivation. Coupled with feelings of enjoyment and satisfaction, the developing youngster may be led to appreciate that the acute and chronic beneficial effects of activity are measurable. He can be made aware, through personal experience and directed study, that mental alertness and fitness go hand in hand.

The third endeavour needs to be directed towards the introduction and the development of what is variously known as "ausgleichsgymnastik", "gymnastique de pause" and "production gymnastics". At the first international conference on the subject, in Belgium in 1967, it was shown that many thousands of people were regular participants. Research has shown that the introduction of the active break leads to reduction in absenteeism and unpunctuality and an increase in production, with more contented workers. In "China News" (No. 4, 1966) it was reported by a party official at a Peking automobile factory that: "It is not a question of whether one finds it interesting or not, when one understands the need to keep fit for the revolution then one should consciously go in for physical training". The trend towards shorter working hours, a shorter working week, longer holidays and longer, more frequent "smokos" may reduce the incidence of industrial accidents which are due to fatigue, but will certainly not increase production or in the long run make for happier, healthier workers. The introduction of active smokos might well do just those things.

It now appears that Canada and America, unable or unwilling to profit from the experience of the United Kingdom, must repeat the sorry story of yester-year. Some of those present will recall how teaching gave way to leading children into fresh fields of experience. One did not

counsel or guide, but washed the windows of the child's mind. A recent Canadian publication[1] suggests that "stop" is no longer a command, free spacing is not a formation, that demonstration is the sole reason for appropriate physical education teaching uniform, that there is no front or back to a class, that it is immaterial whether children look or listen. The problem-solving approach, it is claimed, makes all children successful. It appears that the children we teach are so stupid that whilst the problem of getting from one side of a box horse to the other can indeed by solved by the use of a ladder or by performance of a front somersault with full twist, the two pupils will judge both performances to be of equal degree of difficulty. We are to believe that no child should know the truth about himself. There is, seemingly, as much gullibility in the teaching profession as there is amongst the general public.

Material does not, of course, dictate method, teacher domination need not express itself solely in drill movements, nor does it necessarily neglect free practice, or prevent spontaneous group formation. A games atmosphere can indeed be destroyed by a wrong approach. Tunnelball "by numbers" or successive blasts on a whistle is a splendid way to kill enjoyment. Equally, lack of a good formalized-caution, pause, executive-type command to start a race makes a mockery of a fair start. The scene is further complicated—as in England and Australia—by the attachment of different interpretations to the term "Movement Education".

Physical Activity

There is ample evidence to suggest that too few people regularly take adequate vigorous physical activity. A recent survey of Australian university undergraduates[2] indicated that no more than 5% of students have a reasonable—about five hours per week—amount of activity. The Commonwealth Year Book reveals that deaths from coronary heart disease are increasing at an alarming rate, that attacks are occurring at earlier ages, that the ladies are catching up with the men. Inactivity is an important risk factor in heart disease. Activity tends to influence in a desirable fashion the other risk factors associated with heart disease.

An urgent requirement in this, and other countries, is an inter-disciplinary study to ascertain why people do not exercise. If the reasons for inactivity are found, it should be possible to formulate adequate solutions.

Recreation

There is an urgent need in this country to investigate the pattern recreation may take in the future, to ascertain peoples' needs and desires. It is equally urgent to undertake a survey of recreational areas and facilities and to classify them according to the kind of recreation for which they are best suited. Areas must be set aside and made difficult of access, so that only those prepared to tackle a hard approach—the climbers, bush-

[1] G. Kirchner *et alii*, "Introduction to Movement Education", W. C. Brown, 1970.
[2] A. W. Willee and C. P. Davey, "Activity and the Australian Undergraduate", *Medical Journal of Australia*, 1970, 1: 223 (January 31).

walkers, mountaineers—will gain entry. Other areas may best be suited to intensive recreation, others will need to be conserved wild, natural, unsullied and beautiful. Waterways must be classified, and here safety may be as important as suitability.

It is obvious that there will be an increasing demand for trained recreational leadership. If school and community facilities are both to be made available for school and community use—and the facilities being provided in tertiary institutions and by industry could also go into the pool—it will be advantageous to have physical educators and recreationists sharing duties and appointed to joint positions. Thus a physical educator may be employed part-time at school and part-time in community recreation. In this way continuity of contact with pupils should make the transition from school to work smoother and with more likelihood of continuity of participation.

Physical Education—A Field of Study

Endeavours in this context should aim at establishing a situation wherein not only will initial preparation be adequate to prepare good craftsmen, but which will also provide for the preparation of the scholars, research workers and tertiary level teachers. Implicit in this is recognition of the need to have physical education better understood at all levels.

There is need to stand off and look at alternatives as they exist in North America, the United Kingdom and Australia.

In the United Kingdom it is possible for a physical education student to obtain his degree from a university in some cases without ever stepping onto the campus. Also, in the United Kingdom, it is possible to study physical education and one other subject only for three years to obtain a B.A. with Honours. Some universities favour course work at Master's degree level, others do not. In many English universities—in disciplines other than physical education—one may study three subjects to equal level for a first degree, or one main subject for Honours and one subsidiary subject. Currently in some North American universities graduate students are doing doctoral work in history and/or philosophy without undergraduate preparation or interest in these areas.

Australian universities generally require a fourth year of study for the student to graduate with honours. In most situations the initial degree course acts as a student sieve: the run of the mill student qualifies and leaves the university, the Honours student remains, the outstanding student continues after his Honours year and proceeds to postgraduate work.

There have emerged outstanding products from all types of course and from all universities, but it would be desirable to consider the advantages and disadvantages of each, dispassionately and on a world-wide basis.

Physical Education and Sport

ICHPER and FIEP have done, or are doing, work in relation to sport and physical education, and the problems associated with the relation-

ship between the two are cause for world-wide concern. The primary endeavour must be directed towards re-establishing morality in games playing. This is a local, national and international urgency.

Finally, it must never be forgotten that the objective of physical education, health education and recreation is promotion of the well-being of men and women everywhere, and that in addition to a common purpose there is much else which is common. Whatever the ultimate specialization there will always be need for some joint preparation.

In all that has been discussed in this paper one must allow for individual deviations from what may be considered standard. Extremes, however, though they may stimulate, are rarely right and are often unacceptable.

Mr. Charles Ebert, Assistant Director-General of Education for New South Wales, Australia, welcomes delegates at the Opening Session.
Left to right: Dr. Evelyn McCloughan, APEA President, N.S.W.; Mr. Lambert Hamilton, APEA National President; Dr. A. Forbes, Commonwealth Minister for Health; Dr. Klaas Rysdorp, ICHPER President; Dr. Dorothy Ainsworth, ICHPER Honorary President; Dr. Samuel Cohen, Deputy Vice Chancellor, Macquarie University; Mr. Paul Kiefer, ICHPER Vice President; Dr. Carl A. Troester, Jr., ICHPER Secretary-General.

The Need to Popularize Physical Activities

GUNSUN HOH

Superintendent of Physical Education, Republic of China

TODAY I wish to draw your attention to the ever-growing need for popular physical activities for all the people instead of for a selected few. Most of us live in an either highly developed or developing society. A large sector of the population concentrates in big, yet crowded cities. Even in the developing nations, industrialization is coming into being and they can not escape the great migration of peoples into urban societies. The common denominator of such societies is the often observed crowd and suffocating environs of both working spaces and living quarters. Regardless how progressive the city planner might be, his foresight for a spacious and beautiful city scheme is usually overtaken by the rapid growing of urban population which defies the boldest projection. The pattern of life in such a society is invariably hurrying back and forth between one's living quarters and his working area—usually on a piece of machinery, be it a street car, an automobile or a rail coach—but seldom on his own feet. Result, man becomes less and less fit physically due to lack of exercises and his belly grows. Need for planned physical exercises, therefore, becomes more acute than ever, and the need is for all the people, not for a selected few. Better and more athletic activities not only help build a nation's health, but also help solve the problems created by abundant leisure and crowded environs in the wake of industrialization and urbanization.

While the need is growing, we also see the corresponding growing of problems. I do not have to go very far to cite the many inadequate conditions that are familiar to all of us. Usually in a big city we face the dearth of facilities, such as sports fields, playgrounds and stadiums. The lack of trained personnel to promote community action as well as the lack of qualified teaching staff in school physical education programmes leads to either complacency or frustration with the status quo. There is a general lack of interest in research and development in physical education and sports, therefore, the teaching and training methods are as antiquated as the sports and games themselves. Finally, of course, there is the perpetual lack of funds for anything significant.

I shall not disdain to speak of my own country. According to Art. 164 of our Constitution, "no less than 35% of the local government budget should go to public education". The performance of the local governments has been consistently laudable as no one has operated a budget under the constitutional minimum. However, the introduction of nine-year free elementary education in 1968 places upon the local governments an increasingly heavy burden of educational outlays, the available resources for physical education and athletic programmes in general have been pitiably limited.

I strongly feel that physical education and sports activities should be a participating activity that pervades all people of the nation. Instead of merely promoting exciting games of competition, such as highly organized group teams that are played by a selected few, we must encourage thousands and thousands of shouting spectators to be athletes themselves.

The question naturally turns to how we may achieve our objective? Where shall the financial resources come from to promote athletics for all?

I have some suggestions to offer. One is to provide the know-how on physical activities which, as I said earlier, is very much in the lacking in most countries. The provision of trained and qualified personnel is always expensive and even the richest country finds it difficult to fulfil all the needs. Therefore, I suggest an international physical education development service corps be organized by athletically advanced countries whose mission it is to send qualified physical educators to the needy nations to assist them in the development of popular physical activities. The service corps may be staffed by physical education professors, senior coaches of sports and games, or teachers of physical education. They provide know-how in organizing a national development programme, in introducing new methods and help to discover and tap indigenous resources.

In 1965, I almost succeeded in putting together such a service group in a joint effort with the late Dr. Arthur S. Daniels, who was then the Dean of the School of Health, Physical Education and Recreation at the Indiana University. We had then worked out a concrete plan for the team to visit the Republic of China.

Unfortunately, before the plan had its chance to become a reality, Dr. Daniels passed away, and with his death went the plan. May I take this opportunity to present you my humble idea regarding the International Physical Education Development Service Corps which appears to be the answer to the problem of how to popularize physical education, particularly in the developing nations.

My second point is that in this century we have seen many successful international Olympic Games which are held once every four years. The Olympics have certainly achieved their dedicated objectives of promoting international understanding and better athletic performances through competition. On the other hand, we also witnessed competition going to extremes which is very much contrary to the original spirit and objectives as conceived by the founder of the modern Olympic Games.

Many countries now place too much emphasis on national pride or glory and personal cult or achievement to the extent of hero worship. They train their athletes with wanton disregard for the athlete's individual dignity and freedom. The doctrine of "amateurism" becomes merely lip-service, it carries little or no substance. In some countries the athletes are occupied by training on a full-time basis. Their personal freedom is definitely infringed upon. The coach exercises corporal punishment; the women athletes are not allowed to marry. These astonishing malpractices are producing sports machines and sports slaves. Championship may be won, but the athletes themselves are no longer human beings. I can not speak with stronger indignation against such acts of shame.

Looking at the Olympic Games themselves: every four years, the Games emulate the previous ones in variety, in scale of participation, in elaborate facilities and certainly in the ever-important budget. This by all means is good, as this means progress. We cannot hold a human act back and prevent it from progress. On the other hand, because of this elaborate event once every four years, both the sponsor-nation and the participating nations must concentrate whatever resources are available for a selected few and for a brief span of time while these resources, however limited, might otherwise be diverted for popularizing athletics. The temptation to participate in the Olympic Games is great; so is the necessity to preserve the national pride in joining the bandwagon. I suggest that the Olympic Games consider less elaborate events, limit them to basic individual items such as track and field, swimming, etc. The expenses thus saved may go to more meaningful and longer range objectives in individual nations.

Knowing this might be an unpopular suggestion, I nevertheless place it before you because of my strong personal conviction in the value and need for popularizing athletics in all lands.

Physical Education—Tool or Toy?

COLIN E. SPANHAKE

District Adviser on Physical Education, Auckland, New Zealand

THERE is a story, no doubt apocryphal, of a class which performed the daily ritual of reciting tables. "Two twos are four, two threes are six", and so on. At the end of the dirge the teacher shot out the question: "What are two sixes, Willy?" "Dunno", answered Willy, "I only know the tune."

We might well ask ourselves how many of the products of our own educational endeavours emerge from the pipeline knowing both the tune and the words. Perhaps it might be more pertinent to ask just what the tune is that they do know. Reports from all over the world lead one to believe that it is probably called "Throw out the Establishment" and is sung to the tune of that old sea shanty "Blow the Man Down". Whatever it is called, it is most insistent, and cannot be easily ignored.

It is commonplace today to hear the statement that the world has "shrunk". It is also no startling revelation to hear someone declaim that "We must work together or perish". But all too often the full implications of these facts of life are either ignored or tucked away in the back of our minds, perhaps in the hope that if we take no notice they will go away.

It will not be easy for some to accept the fact of a world society. Old habits die hard and the most ardent patriots will find the greatest difficulty in reconciling themselves to the changes that are occurring now and those yet to come. But modern means of transport and communication have made national isolation a historical curiosity. ICBMs and nuclear weapons have made all wars everyone's wars. Interdependence now has a universal meaning with far deeper implications than any previous trade pact, and international co-operation has become a necessity for survival. How to achieve this is the dilemma of the age.

On a different level, we have another cause for confusion. In the 17th century, Comenius wrote in "The Great Didactic": "We wish everyone to learn the principles, the causes, the purposes of all the main facts about the world. We must do all in our power to ensure that no man in his journey through life will ever encounter anything so unknown to him that he cannot pass sober judgement upon it and turn to proper use

without serious error". In this century, in the last decade especially, an explosion of knowledge has meant that no man can hope to be an expert on more than one field. Even within the one field there is specialization.

An example of the problem facing the educator today can be found in a statement made recently that it has been estimated that if an organic chemist sat down to read all the work published in his field for eight hours a day for a year, at the end of the year he would still be six months behind; that two-thirds of all the machines that will be in use in the year 2000 have not yet been invented; that the majority of drugs that will be in use in 1980 have not yet been discovered, and that three-quarters of those that are in use now will be obsolete in five years. Of even greater significance for us is the claim that many of the children at present in primary schools will be employed in jobs that do not at present exist.[1]

In the light of these developments—the world society, the "implosion" of knowledge, the clamour for reform—the question that teachers must answer is "How can we help the young to reach adulthood so they can not only cope with their environment, but also shape their future?" Even knowing both the tune and the words is no longer enough. Knowledge and understanding, based on values that are universally acceptable must be developed.

In 1966, the New Zealand Post Primary Teachers' Association decided that pressures and demands of a world in the throes of change would have to be faced, and set out to put their own house in order. A select and widely representative committee was set up to examine secondary school practice in our country and suggest any changes that may be necessary. In 1969, the committee published a report, entitled "Education in Change"[2] the recommendations of which, by comparison with accepted practice of the previous twenty-five years, could be regarded as revolutionary. The first six months of the work of the committee was spent in formulating a basis for judgement by which the curriculum could be evaluated and the remainder of the time was given to receiving submissions from specialists in the respective subject areas.

The "Basis for Judgement" was as follows: "Because the committee's thinking about major educational aims is closely related to its view of the nature of human growth, this statement of major aims consists of a short list of human qualities which education should be concerned to promote at all times. The highest value is placed on: the urge to enquire, concern for others, the desire for self-respect."[3]

Surely these values could be regarded as universal.

The urge to enquire is an innate one. "A biological structure implies functioning; it requires no source of motivation external to itself in order to function."[3] Piaget's concept of the biological basis for the development of "intelligent behaviour"[4] may excite controversy amongst psychologists, but it has significance. Professor A. W. Liley, Postgraduate School of Obstetrics and Gynæcology, University of Auckland, in a recent address to the Auckland Branch of NZAHPER, suggested that the rate of learning is highest at birth, maintains a high level for a short time and then begins to decrease. From a physiological point of view there seems to be no

reason why the rate should not remain at a steady level throughout life, barring accidents, of course. But what actually happens is that inhibitory factors are met soon after birth and increase steadily as mobility and "socialization" progress.

Concern for others cannot be expressed only in the form of polite enquiries about health, a superficial acceptance of conventions and rules. It involves a deep commitment based on acceptance of the intrinsic worth of all human beings, a feeling of personal responsibility towards society, which will allow respect for the rights, opinions and actions of others to be maintained at all times. In addition to this passive form, concern for others means the readiness to act positively, sometimes at the cost of personal sacrifice, to maintain the inherent dignity of all life.

Self-respect depends largely on the individual's view of himself. But it is doubtful whether it can ever be achieved in its highest form at the expense of others.

The report "Education in Change" suggests aims for the educator which are well worth noting. They are:

1. To help young people to acquire values which will aid their individual growth and social consciousness.
2. To develop their capacity to enquire in representative fields of study.
3. To develop their ability to relate the parts of their educational experience so that they can see this experience as relevant to their lives.[5]

The report also unequivocally adopts the attitude that "The curriculum should therefore be thought of as a vehicle for the attainment of goals and not as an end in itself".[6]

Where do we stand in relation to these aims, these values? Are we concerned only with the ends, the toys, so to speak or can we use our craft as a tool for achieving these aims and values?

In New Zealand, on our ability to show that in both philosophy and practice we measure up, may depend our future place in the secondary school curriculum. While the report is not official policy of the Education Department, the favourable reception it has received throughout the country indicates that at least it will strongly influence the thinking of all concerned.

Physical education has developed values and objectives with which few would disagree. The caretaker role, the skill development role and the socializing role are all part of our stock-in-trade and need neither elaboration nor justification.

But if we weigh our practices against the values and aims suggested by the Post Primary Teachers' Association, it should be apparent that not even the most dedicated physical educator can remain complacent. Do we consistently, and with intent, deliberately promote the urge to enquire, concern for others, self-respect and respect for others? Do we do all that is possible to enable our pupils to see the activities they participate in as being relevant to their lives?

I suggest that there are at least two areas in which we are not doing all that could be done to develop these values. I go further; in the use of "direct" teaching as the major method of achieving our goals and by using organized competition as a motivation principle, we are more often than not reinforcing the inhibitory factors that Professor Liley has mentioned.

There is no doubt that there are many situations for which there is no substitute for the "direct" approach. The leading exponents of the exploration method, the teachers of modern educational gymnastics, do not exclude "direct" teaching from their methods, advocating, as we all know, the judicious use of "direct", "indirect" and "limited" approaches. It is also readily conceded that it is the quickest way to help the child to achieve the immediate objective, that it is necessary for the growing child to learn to conform to the dictates of higher authority and that in helping the child to achieve an immediate goal we help him to meet the standards of his peer group and therefore help to establish his self-respect. It would appear then that there is ample justification for leaving well alone.

But all these arguments are concerned with immediate performance, the carry-over value of which is often largely fortuitous, that is, if there is a carry-over at all. In the last few years I have had opportunity for many discussions with young men and women in senior classes in our high schools. Most could give, chapter and verse, all the reasons for maintaining physical activity at a high level throughout life. But there was an obvious gap between knowing and doing, an obvious lack of commitment to the principles they knew about. They were regurgitating what had been told them. I see in this lack of commitment a lack of deep understanding, the kind of understanding, the revelation, that comes from solving one's own problems, mastering skills through one's own volition and from finding out for themselves the give and take necessary for effective social relationships.

By contrast, our experiences during the compilation of a primary school handbook of physical education during the early 1950's were quite exciting. We let it be known to schools that we required "indigenous" games for inclusion in the book. Many hundreds were offered and 120 were accepted. The tremendous zest which accompanied the "creation" of the games was obvious. But what was more notable was that even the most complicated games were developed and played without the necessity for umpires or referees. Compare this attitude with the complicated rule books of adult sport, the learned panels of appeal judges without which an international competition could not function. The pupils had discovered for themselves that co-operation, responsibility and conformity to the agreed rules were necessary for the game to proceed.

Direct instruction gives children little opportunity for making genuine choices. The teacher says in effect: "This is what I want you to do. This is how you are to do it. Now do it." Various incentives are employed to motivate effort, and, perhaps variations of the directions are used. But the effect is the same. For the moment, at least, the goal has an absolute value for the child. He endeavours to imitate the picture that the teacher

has conveyed to him and his self-image will depend on his success or failure. If the child is both wise and capable, he follows the teacher's directions to the letter and achieves the goal. "That's that. What next, Teacher?" If the child lacks motor intelligence, he may not achieve the goal, and even if he is praised for his effort, cannot help placing himself in some sort of rank order in relation to his peers, often with disastrous effect on his ego and resultant later rejection of the activity. If this process is repeated sufficiently often, the urge to enquire will depend almost entirely on the force of the teacher's personality, or be non existent.

I am sure that there will be many who will claim that I am overstating the case. But I am not alone in believing that the continual use of direct instruction is an inhibiting factor in learning. Discussions have been held in Auckland in the last two years on the probable causes of the high "failure" rate amongst first-year students at the university. As a result, many of the contributing high schools have instituted "self-learning" classes (my adjective), at the senior level of the school. Pupils choose a course of study and are guided, not taught, by the teachers. They discover for themselves what they want to know. They find out how to find out.

Now while this is an excellent move, it appears to me to be a rear-guard action. It should never have been necessary to be concerned that 18-year-olds were unable to organize their learning. It must be obvious that many years of inhibiting the urge to enquire must have occurred, and it appears that the methods used to achieve set goals may be the cause.

The responsibility does not rest with physical education alone, but must be shared with most of the other subjects. The total school climate must be adjusted to respect the individual differences in children, their different rates of learning, and their different levels of achievement. Art teachers have adjusted to this need several decades ago, science teachers can be credited with using "experiments" since the turn of the century, and even earlier, and while their early methods could be described as thinly disguised subterfuges to arrive at predetermined goals, their modern labs are bursting with an atmosphere of exploration and discovery. The "New Maths" is also almost wholly the active exploration of relationships. Modern educational gymnastics have advocated methods for over twenty years now which would meet the needs I have been discussing. Unfortunately, for many the mention of the name "Ed. Gym." is an anathema. For some curious reason, some likeable, friendly people go purple in the face at any suggestion that Ed. Gym. may have something of value for all. I declare myself publicly as being a staunch believer in the judicious mixture of "direct", "indirect" and "limited" approaches of the Ed. Gym. people, approaches which incidentally have been used by some of the better physical education teachers for many more years than Ed. Gym. has existed. In doing so I reserve the right to remain suspicious of many of the claims sometimes made for the "movement" as a whole.

The use of competition, either in its direct form or in the form of rank order ratings, has long been an accepted procedure in education.

Competition is regarded as one of the facts of life, an essential part of our individualistic social system. Our whole society appears to be based on it. Therefore the young should be faced with it as soon as possible

so that they may learn to cope. One does not need to look far for examples of the beneficial results of competition. The race to the moon, the huge corporations which provide employment for millions, and sometimes huge grants for research and philanthropic works, the rise in the standard of living, modern communications and transport, are all benefits that arise either directly or indirectly from the principle. In our own field we can point to the magnificent performances in track and field events, gymnastics and other sports that have arisen as a direct result of organized competition.

However, there is another side to the picture. Some of the greatest works in art, music and literature came into being, not from competition, but from an inner drive to achieve, to perfect. One could go further and state that the majority of discoveries that have been beneficial to mankind were also motivated in this way.

The essence of competition is self-seeking. It often forces individuals and groups to behave in a manner inconsistent with principles of mutual respect. It often promotes arrogant behaviour, despite our efforts to instil the spirit of sportsmanship and fair play.

Relatively few children—mainly those who are already confident and successful—show marked progress in a competitive situation. Many, particularly those at the bottom of the rank order, experience varying degrees of failure and thus have artificial barriers placed on their growth.[7] The gap between the skilled and the unskilled tends to be increased, with the result that few at the lower end of the rank will attempt the impossible. The rank order system can certainly promote a drive in the able to get to the top, but it also tends to make the objective the goal and learning becomes incidental.

Susanna Millar in her analysis of current thought on the psychology of play states that "Exploring and playing with objects 'for their own sake' occurs precisely when the animal appears most comfortable, and least driven by physiological needs or their derivatives".[8] She also reports Tolman's and also Hull's theories that reward aids performance rather than learning.[9] Mace, discussing "Human Motivation and Incentives" in 1961[10] also suggests that true understanding comes only when man is freed from pressures.

We might well ask ourselves whether the promotion of the "competitive spirit" is necessary or desirable as a tool for learning. We would also be justified in questioning whether competition assists the achievement of the values and aims proposed by the New Zealand Post Primary Teachers' Association. And if we extend ourselves further and ask whether or not competitive sport is the best means of promoting international friendship and understanding, the following news item, quoted verbatim from a New Zealand television report on the eve of the final of the World Cup soccer match between Italy and Brazil, may be used as evidence: "In case Italy wins, armed guards have been placed on all Italian buildings in Brazil."

In Auckland we have given some thought to these views over the past few years and have done a little experimenting. In dance we have annual displays of compositions, most of which are the "creations" of the pupils. At present it is mildly competitive in that values are given for

answering the theme, use of levels, focus, space and other technical aspects of dance. But the choice of theme, music and the choreography are left free so as to encourage the maximum exploration of the possibilities. Some attempts to develop gymnastics through application of the laws of motion by the pupils have been made, but as yet, the shackles of the past are impeding progress. However, in the area of "Learning to swim" we feel that we have achieved, to some extent, the aims I have outlined.

With 320 pools at the moment (one-sixth of New Zealand's total), and aided by the lack of a strong competitive environment, we have been able to experiment widely. Our approach has been based on the principle that the pre-natal, amniotic fluid, environment preconditions the child to accept swimming as a natural activity as soon as various reflexes and physical abilities begin to operate. From the time the child becomes mobile, inhibitions or preconceptions are developed through parental and public warnings on water safety. On entry to the school these must be overcome either through direct teaching or through the use of the beaches in our comparatively new "L"-shaped pools. The beaches allow maximum exploration of the qualities of the water and with minimum guidance the pupil can develop rapidly a relaxed prone position. From this point the teacher becomes a coach. We, as advisers, are endeavouring to develop in teachers the habit of asking the right questions in the right way, rather than directly telling the child what to do. As soon as the pupil is sufficiently efficient he is led to find out simple survival techniques and techniques for saving others. The results have been outstandingly successful.

In this approach the urge to enquire is promoted, self-respect is developed through achievement of a skill, and concern for others is expressed in a very real and practical manner. With no one in the Auckland peninsula more than 30 miles from the sea, and with more than 33,000 pleasure boats for a population of 700,000, "relevance to their lives" is obvious.

The changing world will demand of us a more active concern than we have ever needed to show in the past. It will force us to adopt values and aims consistent with the development of a world society. I have suggested that at least two of our previously acceptable practices will need to be re-examined critically if we are to actively propagate human relationships at the highest level.

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The Development of Sports Facilities and Their Equipment

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Introduction

1. CLOSE EXAMINATION of various Congress reports, of the results of study groups and seminars and discussions with experts at home and abroad, always lead to three problems:

(*a*) In spite of all the efforts of those responsible for school sports, they did not yet succeed in decisively improving its *general situation* nor, in noticeably elevating and securing the status of sports in the sphere of school and university.

(*b*) Besides the fact that many schools are short of physical education teachers, the quality of the present-day physical education teachers is all too often unsatisfactory. Their training does not always meet the requirements of our society and their further education often reveals a lack of straight-forward planning.

(*c*) In many countries and schools the spatial conditions regarding physical education are so often inadequate, so that the objectives of sports are gravely hampered. That is one of the reasons why the integration of sports into the modern concept of education is being questioned.

2. It would be highly interesting and informative to examine the interrelationship of these three problems. My task, however, is only to comment on spatial conditions and demands which we must make on our county-parliaments and the community with regard to the modern school and modern school sports. My speech will be followed by a series of slides which will demonstrate to you my country's efforts at creating sports facilities for children and adults and providing the appropriate equipment.

Now to the Theme Itself

I. Types and Distribution of Sports Facilities for Schools

(*a*) The designers of sports facilities must not only consider the requirements of the school but also the out-of-school demands, including health precautions as well as leisure time and recreation.

(*b*) The tendency towards large school campuses requires a sports centre together with the school centre.

(*c*) Such a sports centre should have outdoor facilities, gymnasiums, facilities for leisure and recreation activities, as well as for special activities (tennis, judo, riding, dancing, etc.).

(*d*) Facilities of a larger area are preferable, as the child's activity and play instinct should not be restricted, and as the size of our present halls has proved too small and therefore inadequate.

The following guiding principles in relation to the whole population are applied in our county:

3·5 qm. (square metres) playing area per person.
0·1 qm. in gymnasium and sports hall per person.
0·1 qm. in outdoor swimming baths per person.
0·1 qm. in indoor swimming baths per person.

We have still got a long way to go before these calculations can be realized, but we have to keep on putting these demands forward, so that they are really taken into account by both county and community, when plans are being made. Recently, nursery education has been brought into the planning, as it has become evident that the old-type kindergarten no longer satisfies the child's demands.

(*e*) With regard to the school sports centre, we have to see to it that the facilities are planned on a scale which permits competitions according to the international rules of the Sports Associations. The schools must not abstain from the general demands for controlled support of high-efficiency training.

(*f*) The facilities should, in the first place, be constructed so as to be highly functionable and so that costs for maintenance are kept down. In order to attain this, it is recommended to form a committee of experienced physical education teachers and architects who should then work out functional plans for all sports. They should also suggest to counties that a larger number of these model facilities be built by them and then bought by the communities. Thus we could save up to 30% of the costs and gain excellent sports facilities at the same time.

Results

The development of sports facilities has made great progress in many countries, and no doubt this is partly due to the instruction given in teacher-training courses on this subject.

Those times seem to be past when sports facilities were treated as a matter of secondary importance in the construction of schools. Sports facilities form part of the whole structure just as sports play a role in the complex mandate of the school.

The development of sports facilities will progress further, just as sport develops and changes within our society. We must keep a close eye on this development and continually look for new designs, which are suitable to the school system at the time and which satisfy the demands of out-of-school sports.

II. General Principles Concerning the Planning and Construction of Sports Facilities

A committee consisting of county officials in charge of the sports section in co-operation with the Cologne Institute for the Construction of Sports Facilities has worked out the following principles:

- The construction of sports facilities for schools takes priority over all other sports facilities.
- Grants for new school buildings should only be given if the required playing fields and sports grounds are completed simultaneously with the school building itself.
- Sports facilities for schools (gymnasiums and outdoor facilities) must be situated within easy reach of the school building.
- With regard to the total number of swimming baths to be provided for the public, these should, where possible, be attached to school centres. Transportation should be provided for those schools which are not immediately supplied.
- The modern organization of school sports requires facilities which make possible various activities for class units as well as for more differentiated organizations (group-teaching, etc.). Training facilities should be provided for events provincially or locally limited which have not yet been encouraged.
- A close connection between schools (school centres) and sports facilities (sports centres) should be the aim. If this connection in or close by the school area cannot be achieved, school demands take priority on the grounds of physical education.
- In addition to physical education at school, sports facilities for schools should satisfy the various demands of out-of-school activities: club training sessions, the training of the best competitors, sports meetings and recreation activities of the public. Therefore, they have to stay open for use on evenings, week-ends and during the holidays.
- On the other hand, it must be emphasized that the demands of the schools, too, have to be considered, when open community sports facilities are being built.
- The general principles for the use of sports facilities have also to be taken into account, when the demand for school sports facilities is being considered and the size of the individual parts of the unit is being determined. If the demands of the different training groups (schools, clubs, members of the public) are co-ordinated, this will result in high efficiency, lower costs for construction and maintenance of the grounds and thus guarantee that the funds for sports are spent effectively.

- Educational needs and the competition rules of the associations united in the DSB are the decisive factors in the calculation of demand and size of school sports facilities.
- Within the calculation of the requirements of general education and vocational schools, additional extracurricular meetings have to be considered as well.
- The teacher must be able to give his lessons regardless of the weather and, therefore, both *outdoor facilities* and *gymnasiums* must be available.

III. The Calculation of the Requirements for Sports Facilities

The committee mentioned in the previous paragraph has also worked out general rules for the demand and the size of gymnasiums, outdoor facilities and recreation centres. These rules differ greatly from earlier rules, but they certainly satisfy the demands of modern sports.

Gymnasiums

Ten full-time classes or 15 part-time classes require one gymnasium each.

The normal size of a gymnasium is 15 by 27 m. of effective area. This is relevant in view of sports clubs using the gymnasiums. Gymnasiums measuring 12 by 24 m. should be built in emergency cases only. Gymnastic rooms and small gymnasiums do not satisfy the demands of physical education.

The construction of large, partitioned gymnasiums must be specially supported. Large gymnasiums provide for all forms of school sports, particularly team games. These gymnasiums measure 27 by 45 m. (equivalent to three halls 15 by 27 m. each) and 21 by 45 m. (equivalent to one hall, 21 by 27 m., and one hall 21 by 18 m.). Each hall, including partitioned halls, must provide fully for all forms of physical education.

In addition to the construction programme of gymnasiums, the inclusion of keep-fit rooms and, if possible, other special rooms, is recommended.

Outdoor Facilities

All types of schools must be supplied with playing grounds and athletic facilities. The space of the outdoor facilities has to be arranged so that single classes can each practise in four groups.

Playing Fields

Five full-time classes or 7·5 part-time classes should be provided with at least one small playing field of 20 by 40 m. useful playing area. One big playing field (artificial or grass) measuring 68 by 105 m. equals two small playing fields.

The small playing fields should have a water-proof, elastic surface needing little maintenance, long-lasting playing field marks and sockets for goals, posts, etc., where possible, for soccer, handball, basketball and volleyball and, if required, for further games.

Athletic Facilities

Facilities are required for running, jumping (long and high jump; if need be, for pole vault), throwing (ball throwing and, if need be, for discus and javelin) and shot put.

The running facilities (four to six tracks) should allow for races up to 100 m. If possible, a 400-m. round track with the necessary marks (relay, hurdling, etc.) should be constructed. If a round track which satisfies competition rules cannot be provided then long-distance running tracks should be made available.

Long jump, high jump and pole vault facilities should, in principle, be at a distance from each other.

Long jump requires a pit measuring at least 8 by 10 m. with four running tracks.

For high jump, individual facilities with foam rubber mounds are required. The same goes for pole vault facilities.

For ball throwing, the playing fields mentioned in paragraph 5.3.1 should be used. Larger sports grounds should be provided with discus and javelin facilities. Facilities for shot put should have a starting area of about 3 by 20 m. and a shot put area about 15 m. long.

No sports centre should be without a gymnastic field and an area for obstacle games.

Indoor Swimming Baths

The calculation of the needs must be based on the principle that swimming lessons should be given one hour weekly for each full-time class and half an hour weekly for part-time classes.

In swimming baths of 8 by 25 m. onwards, two classes can be taught simultaneously. It should be possible to walk around three sides at least of either class section. More than 30 classes need an additional bath measuring 8 by 16·67 m.

Swimming baths should either be close by the school at a moderate distance (up to 500 m.) from the school or made attainable by means of transport. Swimming lessons with simultaneous public swimming hours in the same pool is too much for both groups. School swimming baths should be equipped with an adjustable floor level.

Recreation Facilities

One of the duties of the school is to acquaint its pupils during their school days with sensible recreation activities for their later working life. Therefore, a great variety of activities should be offered. It has been proved on numerous occasions that sport is well qualified to reach this end and can arouse the pupils' responsibility and co-operation outside school.

IV. The Equipment of the Sports Grounds

Modern teaching methods call for differentiation of pupils, according to their inclinations and performances as soon as their stage of development allows this.

In order to gain the highest possible *intensity of activity*, a great amount and variety of equipment is required in order to satisfy the pupils' activity demands and the demands for high efficiency. One cannot, of course, compile a uniform equipment catalogue for all countries, as the climatic conditions, the whole complex of exercises, and their underlying intentions vary to a high degree. As a general requirement, however, such equipment must be at one's disposal, which allows a general basic training and sports exercises in the gymnasium, as well as on outdoor grounds. *Adjacent rooms* should be constructed for equipment, so that all the available playing and sports area can really be used efficiently and so that practising is not hindered by equipment. With consideration towards requirements of our county, colleagues from my association have worked out a list concerning the necessary large and small equipment, which I have included at the end of my speech. It would take too long to comment on this list here. If you can spare the time you could compare it with the requirements worked out for your own country and schools. Thereby you might gain some new ideas.

V. Sports Facilities and Health Education

The designers of sports facilities for schools and the authorities behind them have, for a long time, overlooked the fact that physical education implies health education, and that therefore certain conditions must be fulfilled. The regulations for the construction of sports facilities stipulate *hygienic facilities* too; but, upon examination, we often find that they do not come up to standard. As yet, I am unable to give you a complete list of such facilities and equipment, as the committee formed for this very purpose will need a few more months to conclude its report. Let me just mention that representatives of the Public Health Administration form a part of this committee, as this problem in particular urgently requires the co-operation of all the various relevant institutions.

VI. Conclusion

I admit that my demands stated here are almost maximum demands and will cause high costs. If, however, we deny the teacher and pupil the possibility of working according to the modern principles of teaching and learning, then we should not be surprised if they do not meet with success. We are also concerned with this success at this congress in Sydney and I do not think that we have only a duty to support but also a right to demand.

Equipment

A—*Large Equipment:*

In consideration of the present number of pupils in classes, they should be supplied with *four sets* of each of the most important large equipment. The following equipment is required:

Horizontal bar: four sections with equipment which can be lowered below the floor surface; if need be, horizontal bars inserted into sockets, with light metal uprights.

Parallel bars (four): type and size according to the type of school. If used by boys' and girls' classes one pair of competition parallel bars, two pairs of multi-purpose bars (combined competition and asymmetrical parallel bars) and one pair of junior parallel bars. Fixed castors for conveyance are necessary.

Boxes (four): normal type (five sections, height 1·10 m., with fixed castors; small type (0·50 by 0·70 by 0·40 m.), four also.

Buck horses (four): pupils' size (height adjustable from 0·90 onwards).

Vaulting horses (two): normal size (height adjustable from 1·10 onwards).

Spring boards (Reuther type): four at least.

Mini trampolines (four).

Rings (four pairs).

Benches (four).

Mats (16 on two mat trolleys).

Soft mattresses (two).

If required: gymnastic mats, rubber runners (non-slip), jumping table.

For girls' classes:

Two balance bars meeting competition requirements.

For competition groups and clubs:

One horizontal bar, to be anchored.

One pair of competition rings.

One pair of asymmetrical parallel bars (Reuther type).

The following gymnastic equipment should be permanently fixed:

Climbing poles (six at least).

Ropes (for climbing and swinging).

Wall bars: two to four double sections, swivel-mounted, with a locking device.

Window bars.

B—*Games Equipment:*

For basketball: swivel mounted or hinged basketball target boards and practising boards.

For volleyball: slide rails on the walls or posts on all sides with nets and tightening mechanism.

For hall-handball: dependent on the size of the gymnasium.

C—*Additional Equipment:*

High jump posts (four), netball posts (if required), 12 to 16 marking posts or border line flags with iron bases, container for magnesia.

D—*Equipment for Partitioned Gymnasiums:*

Each first and third hall must be fully equipped. Each second and fourth hall can make do with a limited amount of equipment. The same goes for schools with several detached, but close-by gymnasiums. This limited equipment should consist of: four boxes, four elastic spring boards,

twelve mats on two-mat trolleys, four benches, climbing poles or ropes, wall bars; additional to this, an extra piece of Olympic gymnastic apparatus (horizontal bar or parallel bars), four lots.

E—*Small Apparatus*:

The small apparatus, regardless of the use and time allocation of the sports facilities, must lie in the hands of the individual school authority. Any other method should be rejected. Additional to the first set of equipment, the schools should regularly be given grants for maintenance and replacements, according to demands of the moment. Small apparatus should be locked away in cupboards. The *amount* of small apparatus should be in relation to the size of the school and the number of pupils in each class. In the following list the requirements are calculated according to *gymnasiums needed by the school*, regardless of where the equipment is used (cp. the calculation of required gymnasiums). With regard to the number of pupils in a class, the following is required:

A set of 40—complete equipment (i.e., each pupil of the biggest class to have one piece of equipment).

A set of 20—normal equipment (two pupils to one piece of equipment).

A set of 10—basic equipment.

Should there be more than 40 pupils in the biggest class, the above-mentioned figures should be increased accordingly.

(*a*) *Each* hall should be provided with:

Gymnastic balls (7·5 Zoll.), 40.
Skipping ropes, 40.
Elastic ropes, 4.
Relay batons, 8.

(*b*) Each first and third hall should be provided with:

1. Balls:
   "Medicine" balls (2000 and 3000 g.), 20.
   "Medicine" balls (stuffed, 800 and 1000 g.), 10.
   Flinging balls (mostly 1000 g.), 10.
   Small balls (80 g.), 40.
   Small balls (200 g.), 20.
   Footballs, handballs, volleyballs, basketballs:
   (*a*) as basic equipment of each, 10;
   (*b*) where there is specialization in two games or more, of each, 20.
   If these games are often played on tarmac play grounds sufficient reserve equipment should be available (plastic balls, e.g.).
   If required: Fist balls, quoits, table tennis equipment, badminton equipment, Indiaca, etc.
2. Gymnastic equipment:
   Sticks (if required), 40.
   For girls' classes:
   Hoops, 40.
   Clubs, 40.

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3. Athletic equipment, etc.:
   Shots (2-3-4 kg.) together, 20.
   Shots (5-6·25-7·25 kg.) together, 20.
   Rubber shots for use in gymnasiums if required.
   Sand bags, 10.
   Disc-loading bar bells (short and long dumbells) if required.
   Practice hurdles (with two-sided rests), 10 at least.
   Competition hurdles if required.
   Javelins (500, 600, 800 g.), 4 at least.
   Discuses (1, 1½, 1¾, 2 kg), 4 at least.
   Hammers, stones, poles for pole vault if required.
   Stop watches, 8-12.
   Measures (different lengths), 6-8.
   Starting blocks, high jump posts, high jump ropes, high jump bars (light-weight metal), clap boards, starting pistols, pole measures, tambourines, long skipping ropes, tug-of-war ropes, whistles, team bands (4 different colours), numbers, air pumps, ball grease, markers for putting into the ground, score boards, ball nets (all foregoing if required or according to facilities available).

(*c*) The equipment required for swimming lessons is best kept close at hand and administered accordingly.
   If required:
   Swimming boards, swimming bars, etc.
   Swimming wings and other floating apparatus.
   Diving rings, diving plates, etc.
   Balls for water ball and other games.

(*d*) Equipment for winter sports:
   If winter sports are possible, or if a school attends skiing courses regularly, then a series of winter sports equipment must be available (e.g., skis, sticks, skates).

RESEARCH

What We Know about Man and How He Moves: From a Kinesiological Viewpoint

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SEVERAL scientifically-minded physical educators in the United States of America, classified as kinesiologist (biomechanics) experts, are making a determined and well planned attempt to study man carefully in a movement environment. A few have at their disposal or for their use some rather sophisticated equipment. Some use apparatus from laboratories of other disciplines and professions on their campus, and some have developed their own laboratories that are beginning to rival in magnitude those found in the physical and biological sciences departments.

Each of the separate laboratories tends to reflect the philosophy and personality of the senior professor(s) at each institution. My professional friends tell me that the biomechanics' laboratory and the equipment we have at Indiana University reveals what they think I believe about how to study man in action. To say the least, our interest and expertise in biomechanics at Indiana University leans toward the use of cinematographic and electronic equipment. (This doesn't include the stress physiology and motor learning laboratories which have their own equipment.)

We have another concept worthy of mention. We select as our model(s) only the best performer(s) we can secure as a subject. We hope that these individuals are the best in the world.

With the advent of the computer, the kinesiologist is now able to use many subjects and to have each subject repeat his actions many times. In other words, model actions for each individual and for groups may be established. As the academic training of those entering this area of

specialization is increased, especially in the field of mathematics, mathematical models of performance and predictions of ultimate performance will and are being done.

In a real sense, the future top kinesiologist (biomechanics expert) may well be one trained in mathematics, neurology, anatomy, physics, mechanical engineering and, last but not least, physical education. Perhaps nothing is more of a handicap to the scientifically-minded investigator of man's physical movement than that he is not intimately familiar with how and why man moves as he does from a first-hand acquaintance. The future looks bright in this exciting area.

Some definitions and comments about man and his system are presented here:

Kinesiology (derived from *kinesi* meaning motion, and *ology* meaning science of) is a science, an organization of information which deals with motion; it involves man in this context. Sometimes it refers to an undergraduate course of study in the physical education major curriculum. Too often its content is actually applied anatomy.

Biomechanics is the study of the mechanics of living organisms (man), especially under conditions of sudden, violent or prolonged strain such as experienced in sports. It involves the application of scientific principles to the calculations of the actions made by the living creature.

In a sense, mechanics tell most of the story concerning man's action. We do not use the term *form* any more; we only refer to the mechanics of action. If a new method of performance is developed, then we test it in terms of mechanics. The word form used in such a setting is obsolete.

Design of man. (He is shaped like a cylinder or prism.) He is classified as an *engine* which involves transportation of food and electrical impulses (messages) to the appropriate segments. He is a creature of *habit* and *rhythm* of movement. For example, the sound he makes may be recorded and transposed into musical score. Gymnastics in Europe is taught by the "count" or rhythm method. This is especially true for the aspiring young performer.

Man is the *creative response* of living creatures to the challenges of his environment through the ages.

There is even an embryological basis for the way man moves. As an embryo, he acts on and then responds to his environment; hence, individual differences begin early.

He has a hierarchy of accomplishing locomotion which is in a sequence that is interrelated and dependent. These movements are: swimming, crawling, climbing, walking, running, jumping and throwing, followed by a combination of any or all of those listed above. In the combination of movement, definite learning must take place, whereas many of the lesser complicated actions, called fundamental movements, have a reflex action base.

Man has three main systems with which we should be concerned; this is not to discount the value of the others since they have a very large influence in governing his physical motion.

The three are as follows: the nervous system, the muscular system and the skeletal system.

Sample special biomechanical equipment used at Indiana University in the study of man's actions:

Instruments: electro-myography recorder, telemeter, computer, X-ray (roentgenography) motion apparatus, cameras, speeds from 64 to 2000 (5000) fps, light tracing equipment, force platform, motion analyser, electrogoniometer, stroboscopic equipment, mirrors and beam splitters, holograph (laser beam), electronic track-starting machine, Elgin table, special photoelectric cells.

After we have studied man in a variety of situations, with the use of many devices, what have we found out that may be applied to a teaching and coaching situation? Ten samples of application are included as follows (we have many more but space does not permit their inclusion):

1. There is no forward body lean (trunk inclination) in sprint running after acceleration occurs.

2. Elbow flexion, sideward elbow extension, and then medial arm rotation, and finally hand pronation take place in the throwing of a relatively light object, i.e., the javelin and football.

3. The part of the body to move first in the sprint start is the rear foot and not the hand as previously believed.

4. Mass movement patterns of neuromuscular facilitation are spiral and diagonal in nature. The interrelationship of the nervous and muscular systems are very evident in movements involving the upper trunk.

5. The direction the elbow and knee point in basketball shooting and running, respectively, are one of the true indications of successful or unsuccessful performance. In a pushing action, such as is done in shooting a basketball, the best performance occurs when the elbow is directly toward the basket during the preparation phase.

6. The advantage of being flexible in the pelvic region is almost self-evident in kicking a ball for distance and in hurdling. In fact, a punter in American football should take the same exercises as a hurdler in order to gain the degree of flexibility he needs.

7. It has become more and more evident to me and my students due to the rotational component in high jumping that the high jumper of the future will be a tumbler and may take a lesson from the animal kingdom and be a sprinter too, since the swiftest animals are the highest and longest jumpers.

8. Man is one-eyed, one-handed, and one-footed in sports. That is, one of these is dominant over its opposite. Observe a basketball player in a shooting position. He actually aims as one does in target pistol shooting.

9. When man starts a movement and is fully committed, both mentally and physically to the act, he can't stop it but can only interfere with it.

10. In order to move a limb in one direction, he must move it first in the opposite direction. For example, to extend the arm, he will first flex it. This is done in order to put the ultimate contracting muscles on a stretch and to also apply the force needed during the longest time.

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Sydney, Australia, host city for the Thirteenth ICHPER Congress.

Personality and Perceptual Factors in Motor Performance

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Preface

THIS PAPER seeks to define the role of personality and perceptual factors in motor performance within a broad super-ordinate structure of motor style reflecting a person's preferred modes of motor expression.

Personality has been interpreted in terms similar to those of Leeper and Madison* and is taken to refer to only a part of the whole life of the individual, to be rather heavily social in orientation and is particularly concerned with things of personal emotional significance. It is reflected by the individual's characteristic ways of behaving in given situations.

Perception has been interpreted in terms of Gibson's† discussion of perceptual learning and development. Perception as a process is exploratory action; it is regulatory, selective and searches the environment in the service of adaptive, economical action.

While personality and perception are the focus of the study their interaction with other psychological, physical and social factors in determining motor style is acknowledged as a basic assumption of the theory.

The theme of the Congress has been designated as *New Endeavours* and that of this session as *Current Research Implications for Programme Development.*

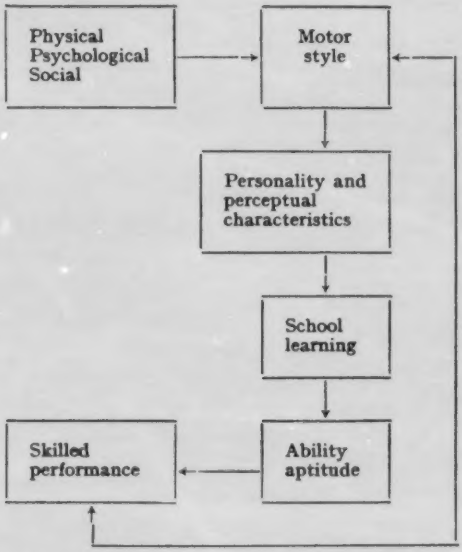
I intend to take the opportunity provided by these two themes to report a field research study undertaken in a Sydney metropolitan high school and to develop the wider perspective under which it was developed. Both these undertakings are important in their own right. One reports field research, objective and statistically analysed; the other, develops in

* R. W. Leeper and P. Madison, "Toward Understanding Human Personalities", Appleton-Century-Crofts, 1959.

† E. J. Gibson, "Principles of Conceptual Learning and Development", Appleton-Century-Crofts, 1969.

tentative terms a concept of motor style which, if proven to be tenable, carries clear implications for both research and practice.

The research study itself is molar in orientation and examines the relationship between selected personality and perceptual factors and gross motor performance variables. Within the study personality and perceptual factors are assumed to have organizing and directional properties which act as mediating structures in determining preferred modes of motor expression and performance. These modes of preferred activity comprise a super-ordinate structure, tentatively designated as a person's motor style. Although the study itself cannot comment upon this broad concept or the causal nature of the specific relationships examined, the study attempts, in a limited sense, to bring into focus the role of non-physical factors in motor performance.



I have utilized the *New Endeavour* theme to elaborate this concept of motor style and to suggest its application to teaching by examining the role of personality and perceptual factors in motor learning. To provide this theoretical perspective of study the relationships between the motor style concept, the specific elements of this concept examined in the study, their place and application within a school and physical education context will be discussed in the first part of this paper. The reader should then be in a position to trace the thread of personality and perceptual factors from broad theory to skilled performance and to interpret the research reported within this perspective.

The relationships between the theoretical perspective can be portrayed schematically.

The second part of the paper will report the study and will attempt to draw implications to practice utilizing the framework developed in the first section.

PART A: GENERAL FRAMEWORK

1. Motor Style

As previously explained, the research undertaken is molar in orientation, field in nature and concerned with gross motor skills rather than skills associated with the experimental laboratory. It should be no surprise, therefore, that a concept which attempts to unify the diverse classifications of motor performance should be presented. The concept is presented in full knowledge that the trend of research conducted by eminent researchers such as Fleishman and Henry and their associates suggests that motor performance tends to be task specific rather than generalized. No attempt at this stage to argue the position is made although it will be raised again in the discussion of results.

This paper assumes that the interplay of physical, psychological and social factors determines a person's range and pattern of motor activity which, in turn, becomes identifiable as a preferred mode of motor expression. These preferred modes of motor expression comprise a superordinate structure, tentatively designated as a person's motor style. This notion supports the idea of a "g" factor in motor performance and reflects such formulations as Adler's style of life, Erikson's life pattern and recent research into cognitive style. Within the concept, personality and perceptual factors are assumed to have organizing and directional properties and to act as mediating structures in determining preferred modes of motor expression and performance.

The notion of motor style also serves to emphasize that non-physical variables may be equally as important, if not as obvious, as physical factors in determining a favoured or characteristic pattern or style of motor activity.

The concept is not new and seems to be closely related to what Bambra referred to as "an individual's own most natural modes of moving".[1, p. 94] However, whether new or not, the concept does appear to recognize that the person tends to act as a unity; that while many factors compose this unity there is an essential uniqueness reflected in a discernable style.

It is the burden of this section to elaborate the role of personality and perceptual factors within this unity of motor style.

Discussion of the role of personality will be brief and will be largely based on Eysenck's work. Discussion of perceptual characteristics will be based on cognitive style (field-dependence dimension) and on the concept of open/closed skills. Collectively, they provide further focus on the non-physical factors in motor performance and the possible role they exert.

(*a*) *Personality Characteristics.*—Excellent surveys of the literature concerning personality and motor performance have been made by Cratty, Singer, Welford and Kane and no attempt is made to duplicate their review

efforts. The work of Duffy and Eysenck form the basis of this discussion and they both tend to focus upon personality and performance in terms of an activation theory of motivation. Eysenck in particular, in his two recent books,[10, 10b] has detailed in professional manner the field here so briefly discussed.

Duffy approached the question of storage and release of energy in terms of an activation theory defined "as the extent of release of potential energy, stored in the tissues of the organism, as this is shown in activity or response".[9, p. 17] Her work is detailed, comprehensive and complex and has already generated research into motor performance within the laboratory setting. Three of her conclusions appear relevant to the position explored by this paper.[9, p. 194, p. 275, p. 322]

Eysenck is quite rightly regarded as one of the leading personality theorists and researchers of our time. He has developed a bi-modal approach to personality in terms of two major and independent higher-order dimensions—neuroticism and extraversion. While generally sympathetic to Duffy's formulations of a single activation-responsiveness dimension he finds it "difficult to see how one and the same dimension of activation-responsiveness can underlie two orthogonal behavioural factors"[10, p. 229]—the neuroticism and extraversion dimensions. He identifies differences in behaviour related to the extraversion dimension with differential thresholds in the various parts of the ascending reticular activating system, and differences in behaviour related to the neuroticism dimension with differential thresholds of arousal in the visceral brain.[10, p. 230]

It is certainly not appropriate to pursue this discussion further at this point. Certain relevant points based on Eysenck's research and writing appears as follows:[10, p. 224, p. 41, p. 163, p. 157, p. 110, p. 183]

In a quite different context, Fleishman[13, p. 173] noted that in tracking studies using a comprehensive fifteen-battery test of motor ability, only 25% of variance in performance was accounted for. In discussing these results he concluded that "there is, of course, the question that some of the unaccounted for variance is 'motivational' or 'personality' variance".

In still another context in which impulsivity and body build were examined, Kagan[18, p. 128] noted that while personally favouring an interpretation based on the assumption of attitudes towards self as a function of body build, "it is not possible to rule out completely the possible influence of complex physiological factors that are antecedent to both body build and the behavioural variables".

The point to be made from this brief exploration is that it appears feasible to claim that the suggested activation-responsiveness dimension underlying individual performance and personality characteristics, supports the notion of organizational and directional properties of personality with respect to motor performance.

(*b*) *Perceptual Characteristics.*—Clifton[6, p. 22] has drawn attention to the fact that physical education teaching and research has centred largely on overt performance rather than upon the underlying organiza-

tional processes which eventually serve to determine the performance we judge. She is echoing a general criticism of Western research effort as a comment of similar nature was made by Pietrasinski[22, p. 14] when comparing Western and Soviet research approaches to ability. The Western psychologists appear to be largely concerned with selection, measurement and classification of basic abilities, whereas Soviet psychologists are mostly concerned with the organization and evolution of abilities.

Clifton's comment is well taken as perceptual/stylistic factors which are idiosyncratic in nature may well impose restrictions as to the type, level and range of an individual's motor activity. Many researchers argue that perception is related to personality in an interactive fashion and that perceptual test performance reflects an individual's personality. This remains a contentious issue and Gibson[15, p. 130] appears sceptical of the "new look" perceptionists who subscribe to the argument that everyday perception of people must be coloured by their attitudes and motives, and their perceptions must reflect their personalities.

Cognitive style theories are part of the new look perception criticized by Gibson. However, the very thrust of their argument and research certainly appears to be related to the motor style concept as the consensus of work into perceptual/stylistic response suggests that the perception of the event is characterized by the person and not by the situation to be perceived. It is this organizational property of the individual which has become known as cognitive style; a particular information processing method which individuals seem to favour and utilize in their contact with their environment.

Research into the proposal that individual styles of processing information may be pervasive and stable determinants of behaviour suggests a pattern of self-consistency in processing. A consistency identified as cognitive style is that developed by Witkin and his associates. Witkin, in a continuing study of psychological differentiation, has proposed a field-dependence dimension as the perceptual component of a more general cognitive style.[28, p. 58] Briefly, the field-dependence dimension is related to the structural aspects of a person's psychological make-up and reflects the degree to which a person has analysed or structured his own experiences.[28, p.13] The terms "global" and "analytic field approach" are derived from this theory.[28, p. 80]

On a practical basis, this analytic quality, reflecting a type of cognitive style whereby information received is processed, may be of considerable advantage in many sports where quick decisions are required; an advantage which may explain level of skill and even selection of the sport to be followed.

Witkin distinguished between an embedded field and a distracting field.[28, p. 49] The ability to overcome the effects of both an embedded and a distracting field appear to be closely linked with such sports as basketball, fencing, tennis, squash, hockey, football and sailing, etc. It is suggested that this dimension of field-dependence could well be an important factor determining selection of a sport, performance and even performance limits; it may be one basis for explaining why certain people excel at team games involving complex manœuvres or tactical play.

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Before leaving this concept it should be pointed out that although acknowledging the importance of activity and constitutional factors in the differentiation process, Witkin stated that there were no conceptual grounds for expecting a relation between activity, in the motoric sense, and a field approach.[28, p. 187] However, little research has been carried out in motoric activity, or level of performance.

Torres utilized Witkin's embedded figures test to determine the relationship between figure-ground perception and the ability to make spatial adjustments necessary for effective catching. Her study reported some measure of limited support for the relationship examined. Her questioning[25, p. 49] of the suitability of a simple two-dimensional geometric task to assess perception of a three-dimensional on-coming object is well taken. Herkowitz, in similar vein to Torres, points out that most human decisions, particularly those regarding motor performance, are made within dynamic rather than static contexts.[15a, p. 91]

The second issue to be discussed is the open-closed skill continuum which was developed by Poulton in training skill research and elaborated by Knapp in classifying games skills as predominantly perceptual or habitual.

Utilizing Poulton's[23, pp. 468-70] classification of effector, receptor and perceptual anticipation, varying conditions of the perceptual field can be established closely paralleling a field-dependence-independence situation. According to Poulton[23, pp.472-3] a closed skill can be considered without reference to the environment or changing conditions; it can be made to fit the environment, provided the requirements are not too exacting and can be predicted in advance. An open skill is one which has to fit either an unpredictable series of environmental requirements, or a very exacting series, whether predictable or unpredictable, provided (*a*) that the unpredictable series of requirements is not too exacting, (*b*) that each requirement is presented either before the subject is ready for it, or before it is needed to be considered, and (*c*) that the requirements are not separated by spells of inactivity, a smooth complex movement can still be made to fit the series after practice.

From these conditions the concept of field-dependence can be readily tailored to fit the closed-open skill continuum; the closed skill favouring the field-dependent end, the open skill demanding more analytic and field-independent behaviour. It would appear that both open and closed skills would favour field-independent more than field-dependent people. In terms of motor performance, closed skill can readily be applied to such activities as gymnastics, swimming, track and field where the environment is stable and the action predictable. The open skill can be applied to game situations such as basketball, football, soccer, tennis, squash and hockey where unpredictable situations occur. Success in these activities depends upon both skilled technique and the ability to apply technique effectively and precisely. The ability to quickly assess the trend of play, or the predicted trajectory of a ball in flight, or to see a gap in the defence of the opposing team, may quite feasibly be related to the field-dependence dimension.

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Knapp[19] has suggested that habitual skills (closed skill) are those in which performance is largely determined by ability to reproduce carefully and exactly a sequence of movements. Perceptual skills (open skill) are those which demand consistent appraisal of the changing environment and call for quick adjustment of the performer's part if the movement is to be effectively executed. Obviously there will be degrees of success in adapting or accommodating performance to the demands of the skill situation where emphasis is placed upon a changing environment or an environment which although predictable, is extremely complex and intricate.

The open-closed continuum and the habitual-perceptual skill classification are not to be taken as clearly defined categories with hard boundaries. An open skill for a beginner may have the characteristics of a closed skill to an experienced and competent player. Conversely, many people will be able to perform closed-habitual skill activities easily and with considerable expertise yet may have great difficulty in mastering skills in the open or perceptual dimension.

These formulations suggest that perceptual motor skill should be viewed as a continuum, position on which will vary with task, practice details and individual differences. Jordan[17, p.2] makes the observation that performance on the open-closed skill continuum relates to response selection and involves a decision as to which established pattern to select. The pattern selected may well be, or develop into, a mode of preferred activity which in turn would assist to define the motor style of the person.

Together, the cognitive style concept and the open-closed skill continuum tend to provide support for the notion that a perceptual basis may be operating in the choice of motor activity.

As a final point on the organizational role of perception it is of interest to note the work of Fantz and Nevis. They examined visual preferences in early infancy and reported a priority "in time and importance, of perception over action in early psychological development".[11, p. 389] This is clearly in opposition to the usual trend of theory which "postulates that sensory-motor co-ordination is prior to and crucial for subsequent perceptual or cognitive development".[11 p. 389] Fantz and Nevis[11 p. 393] concluded that perception precedes and outweighs action as an influence on the development of young infants. One wonders if this in fact continues throughout life and may explain or argue for preference for motor activity in perceptual terms?

To this point personality and perceptual factors in motor performance have been defined in terms of their role in cognitive style and open/closed skill continuums. It is now intended to examine the place of these factors within a model of school learning to further establish that the elements examined in the research study reported do in fact have relevance within the school situation.

2. Model of School Learning

The model of school learning adopted is that described by John Carroll;[3] it involves five elements: aptitude, ability to understand instruc-

tion, perseverance, opportunity and quality of instruction. The model does not account for attitudinal and emotional learning, but rather applies to those situations defined as learning tasks. Of particular interest to the present paper is Carroll's aptitude element and his emphasis on the time needed or actually spent in the course of learning a task. Obviously, aptitude is relative to a particular defined task and is the function of a number of variables. In discussing these variables Carroll noted that "aptitude may also depend upon a series of traits or characteristics of the learner which enter into a wide variety of tasks".[3, p. 726]

For the teacher the implication is clear. Individual characteristics may well be factors that will determine the amount of time needed for any activity or learning task. They will also influence the choice of instructional method, and the individual's ability to understand instruction.

This brief discussion of Carroll's model has established the position that individual characteristics (these are presumed to include personality and perceptual factors) do influence the aptitude variable of the school learning model and hence do have application from the research study to the general school situation.

The next task is to apply the idea of aptitude and personality-perceptual factors within the context of physical education. Skilled performance, reflecting both aptitude and the core of physical education purpose, appears to be an appropriate concept to select, define and examine in terms of research purpose.

3. Skilled Performance

Prior to discussing skilled performance, a word on the classification and definition of motor performance is called for. Motor performance is taken to refer to a particular definable and observable activity which reflects both organization and direction in its execution. In a narrow sense it is sometimes referred to as motor skill consisting of a number of basic techniques or movements which are combined to achieve a defined goal. In a wider sense it is often referred to as a motor pattern where a number of motor skills are involved. Distinctions between fine and gross motor performance are traditionally made as reflecting manipulative as opposed to whole body activity; the latter is the concern of the present paper. Finally, the term motor ability is used in this paper synonymously with motor style to refer to an ability of general nature which determines performance limits on a variety of motor tasks.

There is general agreement that skilled performance has identifiable components. Fitts[12, p. 177] has suggested that skilled performance exhibits spatial-temporal patterning, continuous interaction of response processes with input and feedback processes, and learning. The feedback notion is emphasized by Welford.[29, p. 137] He further commented that all skilled performance is mental in the sense that perception, decision, knowledge and judgement are required.[29, p. 21]

To Bartlett,[2, p. 88] skill, whether bodily or mental, had the character of being in touch with demands which came from the outside world. He further suggested that skill was distinguished by the factors of timing,

halts, points of no return and direction. Of these factors "halts" were suggested as basic to an understanding of skilled performance; "halts" regulate timing which characterize smooth and efficient skill performance.[2, p. 17]

Applied to skilled motor performance it would appear that "halts" in timing may well reflect the effectiveness of utilization of the available environmental information, both internal and external, by the individual. Applying Bartlett's discussion to physical education, skilled performance would need to "fit" easily within the context of the external environment, to use available and stored information efficiently and to be sensitive to the demands of the environment. Conversely, unskilled performance appears stilted and awkward, tending to neglect or overlook the environmental detail which can provide direction to movement.

It is the general contention of this paper that the differential interpretation of the environment by the individual may well explain differences in overt performance, as such interpretation may well be related to personality and perceptual factors. It would be wrong if in emphasis on the non-physical elements of motor performance the role of physical factors appears to be ignored or minimized. Skilled performance reflects the interaction of physical, psychological and sociological factors but it is with the psychological factors of this interaction that the present paper is concerned.

The discussion in this section has presented Carroll's model of school learning as a basis for the present research. From this model aptitude and its individual supporting characteristics were examined and skilled performance was proposed as a central role of physical education teaching. Skilled performance was in turn analysed and the suggestion was made that organization and interpretation of the environment (both internal and external) were essential features of skilled performance. Further, it was suggested that individual differences in the utilization of the input factors may well be related to skilled or unskilled performance.

PART B: RESEARCH REPORT

1. The Study and Results

Method

Subjects.—Eighty-four third-form boys from a Sydney Metropolitan high school were used as subjects.

Test Battery.—The test battery administered included the AAHPER Youth Fitness Test, the 16 PF Questionnaire (Form C), the Maudsley Personality Inventory, and four tests selected from French's Tests for Cognitive Factors (Cf-2, Cs-1, P-3, S-1).

Administration.—The motor performance tests were administered during the first school term, 1969. The personality and perceptual tests were administered separately and in the third school term, 1969.

Results

The data of the study was analysed by product moment correlation technique using the null hypothesis and the University of New South

Wales, Applied Psychology Library programme PSY001. Significance of the correlations obtained was determined following procedure detailed by Guilford. For df = 83 a correlation of 0·213 and 0·278 was necessary for significance at the 0·05 and 0·01 levels respectively.

The pattern of significant correlations is set out in Table I below.

TABLE I

Significant Correlations: Personality and Motor Performance Variables

		Shuttle Run	50 Yards Dash	Softball Throw	600 Yards Run/Walk
MPI	E	−0·240*	—	0·329†	—
16PF	C	—	−0·247*	0·232*	—
	G	0·240*	0·264*	—	0·324†
	I	—	—	−0·299†	—
	M	—	0·239*	—	—
	Q3	—	—	—	−0·215*
	Q4	—	—	−0·326†	—

* Significant at 0·05 level.
† Significant at 0·01 level.
df. = 83.

Sixteen Personality Factors Questionnaire.—The significant correlations established were restricted to four motor performance items and six of the personality factors. For ease of interpretation these significant correlations are consolidated below.

Factor C:	50 yards dash	−0·247
	Softball throw	0·232
Factor G:	Shuttle run	0·240
	50 yards dash	0·264
	600 yards	0·324
Factor I:	Softball throw	−0·299
Factor M:	50 yards dash	0·239
Factor Q3:	600 yards	−0·215
Factor Q4:	Softball throw	−0·326

The negative correlations all reflect positive performance characteristics.

The trend of the correlations is presented in terms of personality then in terms of motor performance event.

Factor C.—Those boys described as mature, stable, calm and with high ego strength tended to perform well on the 50 yards dash and softball throw.

Factor G.—Those boys described as rather casual, unsteady and of low superego strength tended to perform well on the shuttle run, 50 yards dash and the 600 yards run/walk.

Factor I.—Those boys described as practical, realistic, responsible but "uncultured" tended to perform well on the softball throw.

Factor M.—Those boys described as unconcerned, egocentric and imaginative tended to perform well on the 50 yards dash.

Factor Q3.—Those boys described as high in self sentiment control, controlled and exact in their behaviour tended to perform well on the shuttle run and the 600 yards run/walk.

Factor Q4.—Those boys described as composed, calm and relaxed tended to perform well on the softball throw.

From a motor performance point of view better performance could be described as follows.

Shuttle run.—Those boys who performed well on the shuttle run tended to be described as casual, extraverted with low superego strength.

50 yards dash.—Those boys who performed well on the 50 yards dash tended to be described as emotionally mature, casual, unconcerned, egocentric and with low superego strength.

Softball throw.—Those boys who performed well on the softball throw tended to be described as extraverted, emotionally mature, practical, responsible but "uncultured", composed and self-satisfied.

600 yards run/walk.—Those boys who performed well on the 600 yards run/walk tended to be described as casual with low superego strength, yet high in self sentiment control.

Maudsley personality inventory.—Two significant correlations were determined with the E scale scores—shuttle run and softball throw. No significant correlations were found with the N scale scores.

The significant correlations suggest that the person who scores high on the E scale likewise tended to perform well on the shuttle run and softball throw tests, relative to the sample group.

In Eysenck's terms, the boys who tend towards the high score end of the extraversion scale would likewise be expected to exhibit the traits of sociability, impulsiveness, activity, liveliness and excitability.[10, p. 37] In this study, boys who tended to exhibit these personality traits (reflected in E scale performance) also tended to perform well on the shuttle run and softball throw.

Attempting to bring the results together, it would appear that, within the limits of the study, boys who exhibit extraverted, self-assured and integrated behaviour likewise tend to exhibit superior gross motor performance on activities which have some dynamic or whole body movement reference.

Discussion

The study has provided some evidence of a relationship between personality and motor performance; it did not provide similar support for the suggested perceptual factor relationship.

In terms of the relationships between the 16 PF scores and motor performance, the picture of a stable, integrated and self-assured personality linked with high levels of motor performance, confirm the general trend of available literature. With reference to the established relationship between extraversion and two of the motor performance items, it can be

suggested that in Eysenck's terms,[10, p. 24] superior gross motor performance may be related to high levels of inhibition in the reticular formation arousal system.

The perceptual tests did not provide support for the general theory developed. However, their "paper and pencil" nature may account for this fact. It is interesting to note Eysenck's[10, p.117] claim that Witkin's field-dependence dimension appears to closely resemble the N-E dimension. He tends to relate introversion to field-independence and extraversion to field-dependence. It will be remembered that in my earlier discussion I suggested that the field-independent person, with greater self-articulation, integration and awareness, could well be expected to perform better than the field-dependent person on both closed and open skills; but particularly on the open skills. Eysenck appears to suggest a different pattern of relationship. Perhaps further research may clarify this question as the direction of this paper's findings, relating extraversion-motor performance, suggest that extraversion and field-independence could be related.

TABLE II

Intercorrelation between Physical Variables: AAHPER Tests

1	2	3	4	5	6	7	8	9	10
1	0·110	0·163	0·278†	0·178	−0·109	0·136	−0·259*	0·381†	−0·194
2	—	0·594†	−0·078	−0·157	0·106	0·123	0·034	0·209	0·111
3	—	—	0·167	0·003	0·019	0·234*	−0·150	0·293†	−0·183
4	—	—	—	0·319†	−0·503†	0·480†	−0·673†	0·435†	−0·459†
5	—	—	—	—	−0·285†	0·195	−0·249*	0·213*	−0·171
6	—	—	—	—	—	−0·390†	0·517†	−0·284†	0·392†
7	—	—	—	—	—	—	−0·486†	0·301†	−0·214*
8	—	—	—	—	—	—	—	−0·466†	0·430†
9	—	—	—	—	—	—	—	—	−0·420†

* Significant at 0·05 level.
† Significant at 0·01 level.

	M.	S.D.
1. Age	174·13	5·89
2. Weight	118·98	20·67
3. Height	65·15	2·92
4. Pull-ups	4·57	3·31
5. Sit-ups	65·10	21·47
6. Shuttle run	10·46	0·68
7. Standing broad jump	78·01	10·77
8. 50 yards dash	7·52	0·81
9. Softball throw	134·51	33·76
10. 600 yards run/walk	129·32	23·04

One further issue will be mentioned before the implications of the study to teaching are made. This concerns the idea of a general motor ability factor which the concept of a motor style clearly implies. The intercorrelations between the six test items of the AAHPER test are set out in Table II. They provide some support for the idea of a general motor ability although the individual correlations themselves are not predictive.

The general-specific motor ability issue at times appears to replicate the classical "g" and "s" controversy of mental testing. Although investigators such as Lawther, Lockhart and Cratty appear sympathetic to a general motor ability notion, the bulk of research evidence (largely laboratory based) favours the idea of task specificity. At times the question appears to be one of emphasis and of a test battery selection nature.

Cattell's idea of a fluid-crystallized general intelligence factor may have some point in connection with this issue. Cattell[5a, p. 16] considers intelligence and school performance to be determined by personality and motivational factors as well as by two distinct, co-operative second order general factors—fluid and crystallized ability. Fluid ability reveals itself in tests requiring adaptation to new situations and appears to be biologically determined. Crystallized ability seems to reflect cultural habits in a range of ability measures[5a, p. 3] and is a function of fluid ability and personality factors. On the other hand, fluid ability is relatively free of association with personality factors affecting achievement.[5a, p. 17]

From this formulation it appears that performance on a variety of tests may in fact be determined by the particular type of ability tapped by the test and the involvement or non-involvement of personality factors. The question is complex and the extension of Cattell's ideas to the motor realm may well be invalid. However, in the context of motor style I can see personality as a mediating structure, a position which in some measure is congruent with Cattell's formulation. More to the point of the present discussion, it is suggested that personality used as a moderator variable may well provide important insights into the structure of motor performance. Indeed, the results of the study would tend to suggest that a number of hypotheses can be generated from the motor style concept with some degree of theoretical rationale to support them. It is fairly obvious that Lockhart's[21, p. 4] suggestion is close to the truth—that neither a theory of complete generality or one of specificity is adequate to explain how motor tasks are mastered—but the relative involvement of the general and specific factors still require clearer specification.

In concluding this section it is obvious that research evidence has been obtained to support a personality-motor performance relationship but the direction of the relationship remains unanswered. However, insofar as the theory surrounding the idea of personality within a motor style context can be considered viable, then the need to continue investigation into the relationships of this paper are of fundamental importance to any new endeavour in physical education.

2. Implications to Teaching

The implications for programme development and teaching are made in both specific and general terms; the specific relate to teaching, the general to programme development.

The specific implications posed are those which many teachers already apply under the name of intuition, sensitivity and common sense. Therefore, I apologize if the specifics discussed appear to be simply re-iterating the already "knowns"; however, one purpose of research is to provide objective evidence to support or modify these subjective "knowns" of educational practice. Hopefully, the points listed below may contribute to this end, always bearing in mind the restrictions which sample and test battery impose on their elaboration.

1. Personality pattern may assist in explaining a child's dislike and, at times, ineptitude for certain motor activities and, conversely, his liking

for others. Children may require patient encouragement and instruction in order to secure participation in activities within their physical capacity but not within their repertoire of preferred modes of motor expression.

2. In programme development it may be important to consider personality predisposition in assessing present performance and in selecting the type of activity best suited to the child's overall physical development.

3. The final point suggests that personality factors may have organizing and directional properties which act as mediating structures in determining preferred modes of motor expression and performance.

There appears to be good reason to include selected personality tests within the traditional cognitive assessment pattern. The psychological make-up of children who reveal narrow modes of motor expression and relatively poor performance may be of vital concern in programme development. The implications of this suggestion are clear: more trained school counsellors to provide basic information about children for a profession so clearly identified with affective and interpersonal responsibility.

The broader implications are couched in terms of individual differences and differential learning patterns. I am afraid that too frequently we accept without question the idea that children tend to interpret their environment similarly, that they respond to stimulus events in like manner, that everyone requires exactly the same number of exposure hours and that all the class should receive the some content loading.

Physical educators, above all teachers, have the opportunity to escape from what Hutchinson called "2 × 4" situation—2 covers and 4 walls—and to meet the child in a relatively unrestricted and unstructured environment; an opportunity to be utilized to the full by providing a flexible programme and a variety of class sizes. Under such a revision remedial programmes could well incorporate orthopædic and perceptual-motor responsibility.

Reading problems and their perceptual-motor basis is one area which physical education in the primary and secondary schools has, until recently, largely ignored. The writings of Piaget, Bruner and Hunt, together with the practical programmes of perceptual-motor activities initiated by Kephart, Frostig and Ayres, suggest that the introduction of physical education within the elementary school, based on a perceptual-motor approach, is of top priority and its extension to the secondary school, in a learning/reading disability context, is long overdue. Indeed, the lack of perception by physical educators that many learning problems on the "academic side" of school may be ameliorated through their programmes has frequently restricted their impact upon the total educational purpose of the school.

For many children in the secondary, as well as the primary school, carefully developed programmes of perceptual-motor activity may be the most beneficial motor experience to be offered. Such programmes reflect a motor style approach and are cognisant of motor-personality relationships and seek to extend the motor range and modes of expression of the physically awkward and tentative child. From this basis a wider and more realistic participation may be developed.

At this point it should be re-stated that the results of the study do not support a perceptual-motor performance link. Reasons for this have been suggested. My present discussion is based on published research and a firm belief that perceptual-motor training may be fundamental in establishing a broad basis for motor style development. Another paper to be presented to this session of the Congress provides more objective and practical support for my contention.

Obviously, it is rather easy to draw broad strokes of programme development which seem to obscure and ignore the realities of the school situation. Clearly, the notion of differential programmes runs straight into the hard realities of the school—training, shortage of staff, lack of facilities, and frequently a lack of administrative insight as to the educational potential of physical education. However, in concluding this paper, and in the spirit of this Congress, one must stress that without new horizons, no matter how difficult to attain, there can be no new endeavours and without new endeavours there can be little educational advance.

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Dr. Gunson Hoh, Superintendent of Physical Education, Republic of China, and Dr. Klaas Rysdorp, The Netherlands, ICHPER President, study the Congress programme between sessions.

The Role of Gross Motor Skills in Predicting and Averting Reading Failure

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In his recent article,[41] Paul Lengrand, chief of the continuing Education Section of UNESCO's Department for the Advancement of Education, said ". . . it is evident that educational theory has only a very tenuous link with educational practice." We must begin to strengthen this "tenuous link". There is much diversity of opinion on the teaching of reading. It does appear that most failure to learn rests in the learning process itself; rather diminishing the necessity for seeking elaborate psychological causes.[16]

Rationale

1. It is a matter of great concern that there are many children who reach the age of eight-plus years, not having acquired the basic skills employed in reading.

2. Basic inherent differences in the acquisition of reading skill have not been fully considered; such as the insistence of using a phonic programme for a child who is auditorily impaired, or a look-say method for a child who has visual perceptual impairments.

3. It seems only logical to try to prevent reading failure before the age of eight-plus years, because of the difficulties encountered later in remediation, possible emotional disturbance and, of course, the educational wastage.

4. The children in our Infants' Departments are within the age range of five to seven years, within the stage of maximum perceptual development.[20] Testing of perceptual abilities should be carried out as early as possible and a developmental programme provided, therefore. This approach is supported by the findings of Piaget and Werner concerning the evolving stages of sensorimotor, perceptual and linguistic functioning.

5. Gross motor skills may be employed wisely in perceptual development.

6. We could find no valid research to test the well-known theories supporting the use of gross motor activities in developing reading skills. Therefore, I decided to test the ones I found most feasible in a teaching situation.

1. Background

Our country has been the recipient of the printed argument from many authors and publishers through books and journals, on the possible valuable role of gross motor skills in learning, particularly reading.

Two major observations impressed me: many of the readings smacked of valid educational theory and, secondly, it was obvious that success was being achieved in special education. If the latter were true, why would these skills not help the special problems of children in a regular school.

Much of the reading on gross motor skills (sensory motor training) was in the context of perceptual training of the main sensory modalities—even though some used skeletal movement only or first, as a basis for developing other perceptual skills.

2. The Problem

As our work as a school is to teach all the subjects in the curriculum with reading as our biggest task at the age-level of our children, the challenge seemed to be to set up a perceptual training scheme to be integrated into all phases of the teachers' programme and yet have its own place in planning and emphasis. This scheme should include the four main sensory modalities employed in reading—kinæsthetic, visual auditory and tactile.

If these areas of perception were to be trained as such, we should determine the children's individual abilities in them through testing. Here we may be able to predict reading skill by expanding the test to include language development.

Thus we needed to gather a series of tests which would be given to the child as soon as he entered school (in this State (N.S.W.) at a minimum age of 4·75 years, but averaging 5 years of age in our case).

3. Compilation of a Test

In compiling the test battery, credence was given to the findings of Kephart,[29] Frostig,[20] Gesell[23] and de Hirsch.[27] As perception testing is reported to be a better indicator of reading achievement than I.Q. testing at this age, perception and language tests were chosen. Care was taken to ensure that tests selected were those which, under supervision, could be administered by the class teacher within a classroom situation, and given with standardized directions. Scoring points needed to be simple and yet adequate to provide sufficiently detailed profiles for programme planning. Our research is peculiar in that it has this practical nature.

It was decided to test the kindergarten children at the beginning of the year and to provide training for them in areas where their score was low, as well as providing developmental training in all areas of perception (and language) related to reading. The developmental training was important because these children are at the age of maximum perceptual growth.

4. The School Entry Screening Test

Item 1: Kraus-Weber tests (1-6).
Item 2: "A-J" test from Winter Haven scheme, consisting of 10 items.
Item 3: Dominance testing. Eye, foot and hand dominance are tested.
Item 4: The perceptual forms test. Gessell's test, as used by Winter Haven[17] is given.
Item 5: Human figure drawing. Goodenough: draw-a-man test.
Item 6: Auditory. Perceptual patterning and language testing according to de Hirsch in "Predicting Reading Failure".
Item 7: Tactile, haptics, haptic-visual and haptic-kinæsthetic equivalence. Tested according to Di Meo's description of terms.[32]
Item 8: Colour blindness test.

5. Administration of the Survey Screening Test

The test is given between the third and seventh week after beginning school, since a period for orientation into the school environment is allowed first. The teacher administers each part of the test at one time, taking the children individually in the classroom. Groups of children who have difficulty in any item are listed and a programme of exercises is drawn up in order to give them special training.

A social adjustment scale is checked by the teacher at the end of the first term (after three months at school). This scale has produced interesting correlations with ability ratings in the perceptual skills.

6. Follow-up Testing

At the end of the first year at school the Frostig test of visual perception, the Scott Foresman inventory survey test, the Bender visual-motor Gestalt test, the Peabody picture vocabulary test and, where appropriate, a reading age test is given. These tests enable us to design programmes for the children in the following year. Through the period in the Infants' Department, testing is given at the completion of each section of the programme in reading—sections cover an average of three months, according to ability ratings.

Kephart and Chaney[12] observation checklists are kept on each child with dated entries for performance on each skill. This testing is done within the teaching situation. Individual check lists are kept daily on visual perception exercises.

As the programme progresses, individual check lists are kept on walking board, jumping board, balance board and "space walk" activities.[4]

7. General Developmental Perception Training

It is significant to describe briefly, in order to see the use of gross motor skills in perspective, the nature of the general programme and to refer to other areas of perception training integrated. Most training in kinæsthetic perception is given through the use of exercises suggested by Kephart and Chaney; in Visual Perception by Marianne Frostig,[21] Continental Press and Milliken Stencil matters. These are supplemented by the teachers' stencils where children need to repeat exercises. Auditory and language training are closely integrated and are developed into a psycholinguistic programme based on ITPA, and exercises from many books for infant teachers presenting language development and auditory skills. Tactile, haptics: haptic-visual and haptic-kinæsthetic (Di Meo[31]) abilities are trained by exercises similar to those described in the test.

It is important to state that this developmental work is not merely being carried out for purposes of experimental evidence but that it is integrated into a curriculum of work which covers all subjects to be taught at school, so that individual problems can be identified and remediated within the context of the daily schedule.

8. Developmental Training in Gross Motor Skills

Results from the survey screening test are used to suggest to the teacher points of emphasis in the perceptual training programme for the whole class and for groups of children who encounter special difficulty. The developmental programme includes Kephart's points from "Motoric Aids to Perceptual Training"[12] (and its check list), gross motor training as suggested by Frostig,[20] Cratty,[14] the Winter Haven programme and Belgau[4] particularly. This training is integrated into the physical education programme. The time allocation in the developmental programme is three hours per week, but additional time is allowed for some children who indicate a greater need in this area. Eighty-four exercises are checked on the walking board, 27 on the jumping board, 18 on the balance board.

Performance is improved by practice, teacher encouragement, motivation and maturation; the latter including physical, intellectual, perceptual growth. In motivating, the element of competition[30] was considered. At the age level of our children performance is found to be best improved by self-competition rather than with peers.

Clifton[13] quotes Hebb as giving attention the same meaning as perceptual set in gross movement. "Set prepares the 'individual to attend to' certain of many stimuli . . . when attention in cognitive situation has been conditioned to certain stimuli . . . these stimuli can be located in a search task more rapidly than before conditioning". The implications from these writings for us are that practice is a major factor in improving perception.

Another writing which had a practical application for us was that of Guildford.[26] Observations of our children supported his classification matrix theory of general and regional abilities as we helped them to improve their skills. We had a picture of "general factors" from the testing battery. These, I quote, "are more dependent on heredity and the

regional ones relatively more on experience".[26] The most efficient help in improving regional abilities was given by additional verbal instructions during practice. These abilities, of course, were the ones we had to concentrate on at school.

It was felt that the development of regional abilities was most important in promoting the growth of perceptual skills through gross motor training.

9. Observations Made in Training

In the motor activities we found (in agreement with Espenschade[19]) that children from lower socio-economic levels tended to be superior in motor activities. This we found in observing levels within one school and in comparing two schools—one in a higher socio-economic population and one in a lower. The children from the lower socio-economic level had superior skills in visual perception as indicated in performance on the Frostig programme.

It was interesting to note that the children from the higher socio-economic group had a higher performance in auditory and language skills.

They also showed greatest benefit from training in visual-motor and other visual perceptual skills. It is believed that these observations of poorer performance in the gross motor skills of the children in the higher socio-economic level may be prejudiced by the fact that they were mostly flatdwellers with little or no playing area.

No correlation was found in general between the performance of motor skills and measured intelligence except, as many researchers have found, at the low end of the range. We did find that children of higher intelligence in test scores improved their performance more quickly, possibly because of the growth of cognitive skills which aided the interpretation of directions for improvement. Piaget, "the more numerous the sensory motor experiences, the more numerous the cognitive structures resulting in the greater number of tasks that can be resolved". Added to previous statements, this thought supports our theory of practice.

A discussion on feedback was studied for training procedures. Clifton[13] states that "feedback concurrent with predetermined movement establishes a loop effect and functions as new input, thus "continuing the perceptive process as long as it is required in a given movement situation". Feedback was not used as a control concept in our situation because we were not equipped to determine the extent to which the children were attuned to feedback information.

The matter of figure and ground was studied as well, and Gallahue's[22] and Cratty's[14] discussions were read. Gallahue[22] cited significant relationships between figure-ground variations of a gross motor task and the figure-ground subtest of the Frostig developmental test of visual perception. We interpreted these findings as supportive argument for including figure-ground training in gross motor skills to aid development of figure-ground perception. Programming in this area was made with a mind to Cratty's[14] statement that perception is influenced by "the manner in which we select central objects from their background and our relative depen-

dency upon the central figure . . . when making perceptual judgements". Teacher observation and perceptual testing generally supported these theories postulated. We found that children varied in their perception of figure and ground and exhibited anxiety when their task was inhibited by blending of the figure and the ground. We did find that children who had the ability in figure and ground exercises in the Frostig programme were not necessarily always adept at figure and ground ability when performing gross motor tasks. Conversely, gross motor tasks in figure and ground aided children who had difficulty on paper exercises. This was difficult for us to explain. Interesting experiments are being carried out in the area of figure and ground currently. Our observations above therefore support the view of "perception as an active, creative process, not a static reception of inputs".[37] Further, that "perception concerns a relationship—between physical energy from the environment specified in physical terms, and psychological experience, referred to in psychological terms".[37] We would add Bruner's[2] conclusion that "perception is strongly determined by past experience with the environment". We could observe this simply and apply it to our theory of practice. "The lack of figure/ground perceptual ability may cause a child to lose his visual orientation in space", according to Gallahue. This statement, coupled with the Gestaltists' view that figure-ground perception is "the first perceptual process" (and our own observations) supported continued gross motor exercises to develop figure/ground perceptual ability.

The value of practice had to be assessed by us continuously because time is so precious in a school today. Hebb[13] says "that a neural circuit starts operating as soon as any portion of it is excited. Initially the growth of cell assemblies and phase sequences is slow, and thinking and learning are tedious. With the organization of elaborate phase sequences conceptual and insightful learning becomes easier". Our interpretation of the comment validated for us the importance we place on practice and the possible integration between gross motor skills and academic skills.

10. Observations in Testing

A high correlation was found between performance in the gross motor skills and achievement on the Frostig visual perception programme. Only seven children (five of whom were boys) in 88 kindergarten children failed to show that correlation in 1969. These seven children were referred for professional testing, and differential diagnosis disclosed that two children were emotionally disturbed, two boys had minimal cerebral dysfunction, one was culturally deprived and two were emotionally deprived.

This year in testing the correlation did not exist for one boy from a non-English-speaking home, one boy who was diagnosed aphasic and one who had a chronic health problem (bronchitis). In the case of the first boy, we believed that there was a problem in interpreting directions given in English. Because this correlation appears to exist it was suggested to us that we should regard the correlation as significant and that we train the children in gross motor skills as an aid to developing perception.

11. Observations on Training

All children who indicated by their progress in the perceptual training scheme and testing that they had the ability to identify word symbols were introduced to reading. This meant that by the time the kindergarten children moved into first grade, minimum age five years nine months, average age for our school six years, that many had already attained a reading age on a standardized test.

The top reading age in this group was seven years. The children moving into first grade were divided into three classes and the whole of the grade had a reading age curve in the first term of 5·2 to 7 years. The average reading age of children commencing first grade was 6·4 years, 0·4 years in excess of their chronological age. The disparity between the chronological age and reading age widened greatly in the first six months in first grade. By mid-first grade the top reading age in first grade was 9·2 years and the most advanced class averaged 8·2 years—seven-tenths of one year in excess of their average chronological age. The reading ages throughout the first grade on the average were 1·4 years higher than those in corresponding classes in the same months in the preceding year when the scheme under discussion had not been introduced. There were no other significant variables. It appears that perceptual testing to provide individual programmes in perceptual training is a factor aiding this increase in average reading ages as all other factors in the environment and average scores in basic abilities remained the same.

We are inclined to think that the perceptual training scheme with its intensified practice programme allowed the children at this stage of marked perceptual development to achieve a somewhat higher reading age. It is possible, however, that organization of the children's work instituted by the implementation of such a scheme was more thorough and that general supervision of the children and their work was more efficient resulting in higher reading ages. Because we were concerned with administration of teaching programmes in a school it was only fair to give the training to all children. Comparisons, therefore, had to be made with reading scores in previous years to judge effectiveness of training in perceptual skills.

Our results differed from those reported by Arciszewski.[2] In his pilot study to evaluate the effects of the Frostig programme of visual perception on the visual perception and reading ability of first-grade children, it was found that "perception training may significantly improve the visual perception of the first-grade students", but "the reading scores of children receiving perception training were not significantly different from children receiving phonics training". Perhaps one reason for the difference is the lack of a screening test to discover strengths in the sensory modalities and to provide individually-styled programmes. We believe in a longer training period than the one reported by Arciszewski.[2]

At the end of the first year of training, results from the Frostig visual perception test indicated varying rates of improvement. This, amongst other observations, supported some of the popular theories of the moment on developmental lag.

We were interested to notice that the curve of improvement in performance had plateaux for some children and that children sometimes improved for a period of time at a greatly accelerated rate. It was found worthwhile to continue gross motor training throughout the course in the three years in the Infants' Department. Until second grade, all perceptual training is integrated in subject areas with special help for children who have problems. One of the reasons for this was that some children would improve in perceptual skills as applied in reading and later regress for a time. It was felt that regressions were helped by additional training in perception through gross motor skills. In addition, general physical and social development was aided by such training.

Where children had problems in perception of position in space (likely to cause reversals)[43] according to our observations, they were aided by additional practice in visual motor training. Of the 88 children in the first grade, 1970, who had received the training programme in kindergarten, only four showed any reversal problems by age six years. We were used to expecting between 20% and 30% (17 to 26 children out of 88), with reversal problems (see Vernon[42] on reversals).

12. Unexpected Outcomes from Testing and Training

To put it simply, perhaps best of these is the motivation on the part of the staff and the children. The staff commented on the fact that they could understand the nature of the children's learning more at kindergarten and first-grade levels than they had been able to before. They felt that in the past they had been working in the dark as it were, in trying to provide a successful programme which would include games and activities in various areas applied to reading. Now they had a programme and a profile of each child's performance at any given time. Teachers observed again and again that the children who had problems in discipline, who had evidenced shortened attention span in group situations, who had problems in social adjustment with their peers, were more settled and work performance was greater. It is significant to relate that by the end of the first term, i.e., three months' training, no child had a significant personality deficiency in so far as sociometric relationships in the classroom were concerned. The effect of success in the programme on self-image is very noteworthy. Self-image was maintained in children who showed improvement in the gross motor activities. This area more than any other specific area, helped in the development and control of self-image.

Motivation is now regarded to be a highly significant factor in performance in the perceptual training scheme. Children were motivated by the fact that they had detailed records of their own achievements even at kindergarten age level. It was not uncommon to have a child approach the teacher very excitedly to announce a good score in his training programme. Such anecdotals motivated the teachers and reinforced their interest in the programme.

Motivation was also assisted by self-improvement records because so many of the tasks were being undertaken at individual levels. The spirit of competition did not enter into the motivation as much as one would expect with older children who are not so egocentric.

Thoughts expressed in my rationale have been satisfied in that we believe that the children who are likely to fail in reading in the early stages had been discovered and, to some extent, their problems remedied.

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Physical Fitness Studies in Physical Education for Women

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In the field of physical education, it is of great importance to develop the physical fitness of the people. As an introduction of this presentation, the levels of women's fitness have been attempted to compare with those of men for a better understanding of women's physical characteristics.

In Table I shown were the percentages of Japanese women's fitness as compared with those of men, 100%. Comparing the absolute values measured, the women's body size (or mass) was much less than that of men, as observed typically in body weight (87%). Most of the functional items also showed considerable sexual differences: for instance, 67% in maximum oxygen intake (VO_2max) and vital capacity (V.C.). But no distinct differences were found in neural functions and flexibility. It may also be reasonable to compare the relative values to body size or weight, since the absolute values might reflect the body mass in the functional test results. However, the relative values computed still indicate less abilities in women than men: *e.g.*, about 80% of men in the items of VO_2max/weight and V.C./height. In this consideration, suspected is the influence of the amount of fat involved in body weight. In fact, women showed 2·7 times that of men in the skin-fold thickness, whose greater differences appear after the pubescent period. Regarding this point, a study by M. Ikai *et al.*, with an ultrasonic method, demonstrated no sexual difference in the strength per unit cross-sectional area of the muscle. Another proof may be referred to the fact that maximum oxygen intake per lean body mass (weight without fat) showed less difference than maximum oxygen intake/weight. General motor performances of women resulted in one of the lowest percentages, i.e., about 70% of men. This might be because general motor ability reflected not only the defects in various fundamental functions but also reflected a handicap of comparatively large body weight to be carried.

The primary purpose of this paper is to present the effects of training on the women who possess such physical characteristics as mentioned

above. Training here does not mean the ways of raising top athletes but for the development of physical fitness in ordinary women. The ultimate goal of the project was to study the training method that may be applicable in practical physical fitness in the school systems.

TABLE I

	Items	Women/ Men (%)
Body size	Height	93·5
	Weight	87·3
	Chest circumference	95·8
Strength	Back strength	56·3
	Grip strength	63·7
	Elbow flexor strength	60·6
	Back strength/weight	(64·5)
	Elbow flexor strength/cross-sectional area	(98·4)
Circulatory function	Heart size	80·5
	Heart weight	84·0
	Stroke volume	85·5
	Minute volume	89·4
	Stroke volume/body surface area	(93·9)
	Number of red blood corpuscles/mm.^{3}	(87·8)
	Hæmoglobin/100 ml	(87·4)
Respiratory function	Total lung volume	67·8
	Vital capacity	67·4
	Maximum oxygen intake	66·7
	Vital capacity/height	(80·0)
	Maximum oxygen intake/weight	(80·0)
Neural function	Simple reaction time	100·0
	Tapping	103·5
	Stepping	94·9
	Whole body reaction time	94·8
General motor ability	Sidestep test	92·3
	Flexibility	103·9
	Vertical jump	66·8
	50 metres dash	78·0
	Running long jump	70·5
	Handball throwing	63·7
Skin-fold thickness	Back (dorsum)	231·2
	Abdomen (abdomen)	245·3
	Upper arm (strachium facies anterior)	289·5
	Thigh (femur facies anterior)	321·2

1. Training of General Endurance

The major factor that supports general endurance is the amount of energy consumed in a given time unit under the steady state. The maximum oxygen intake is usually recognized as a primary index determining human aerobic capacity.

Among men, the maximum oxygen intake and endurance running time increases with age. In the case of women there is a decrease in the above two factors from 10 to 17 years of age.

Experimental Method

An experimental and a control group of girls aged 19-21 years were taken where the experimental group followed a training programme of five minutes of running three times per week.

The results showed:

1. An increase in the running distance over five minutes, significant at the 1% level.
2. 133·6% increase in endurance running time on the treadmill.
3. An increase in maximum oxygen intake.
4. An increase in the red corpuscles and the hæmoglobin level.

All of the above increases occurred in the experimental group. There were no significant changes in the test items for the control group. It is concluded that a five-minute training run three times per week is an effective and adequate training method for improvement of general endurance.

2. Training of Muscular Endurance

The study or training of muscular endurance was conducted by M. Ikai and A. Kagaya and was conducted to analyse the relationships between muscular endurance and blood flow to the acting muscles.

Experimental Method

A group of 13-year-old boys and girls were subjected to a training programme of grip contractions on a grip ergometer six times per week. The training load was one-third of the maximum grip strength of each individual and the series of rhythmic contractions were performed at the rate of one per second.

Experimental Result and Discussion

1. There was an increase in blood flow, greater in boys and girls than in adults, to the working muscles.

2. The number of muscular contractions increased significantly in all groups.

3. No sexual differences were found in the increase in ratios of the number of contractions and in blood flow at the end of six weeks of training. Training effect for men and women appears on a similar pattern.

3. Training for Strength

Among the sexual differences of physical fitness, the difference in muscular strength was the largest. In general, between men and women, the women's strength would be some 60% that of men.

In my current experimentation, adult women were subjected to perform dynamic strength training of the upper arm flexor muscles with various amounts of loads.

Experimental Method

Ten teams of female subjects, 18-20 years of age, were given various frequencies of training and various frequencies of weight loads.

Experimental Result and Discussion

1. Testing each of the individuals, initial strength as 100%, it was shown that the groups that performed six, four, three and two times per week had an increase of 140-150% after twelve weeks. The increase ratio of the group that performed once per week was 110%.

2. The group that trained with a two-thirds maximum load improved to 140-150% while the group that used half maximum load increased 110-120%.

3. In most subjects it was noted that the increase curve became plateau at the 20-22 Kg. level.

4. In conclusion, the muscular strength for women will reach to that of ordinary men after three months of training by two-thirds load of maximum strength with a frequency of more than twice per week.

Summary

In summarizing, the following statements would be made:

1. The absolute value of women's physical fitness, in general, is smaller than that of men, even after a consideration is given on the comparative value of height and weight which are smaller than men. However, when the effect of the amount of fat was excluded, no sexual differences were observed. The reason why women's motor performance does not increase after the pubescent period is considered to be ascribed to the accumulation of fat, which is of biological character among the post-pubescent girls.

2. The training on general endurance, muscular endurance and maximum strength would be quite effective, if the training method is appropriate, even in a comparatively shorter period of time. Thus it was concluded that by proper method it will be possible to develop potential physical fitness by increasing the amount of energy source.

3. The goal of the women's physical fitness may be different, in some points, from that of men. However, it is essential to know how to develop women's fitness in order to make the foundation of the healthy life. For this purpose more studies on the training method would be necessary by understanding the characteristics of women.

Skill Learning and Teaching: A Cybernetic Model

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CONCERN has often been expressed at the inadequacy of traditional psychological approaches to explain adequately human behaviour, in particular the complex behaviour that characterizes skilled performance.

> A student beginning psychology today must find it very difficult to realize fully the revolution that has taken place during the last decade. Thought has become clearer and more confident in many areas and substantial progress has been made towards a psychology which is truly quantitative and thus towards the removal of what had previously been one of the subject's most serious drawbacks. (Welford, 1960, p. 189.)

The approach to which Welford refers has been termed cybernetics. Cybernetics is the science of control and communication in the animal and the machine, and is concerned not with things, but with ways of behaving. Thus, cybernetics treats any particular systems by asking what are all the possible behaviours that it can produce? In particular, the cybernetic approach makes two important contributions to the study of biological systems (Ashby, 1956):

i. It offers a single vocabulary and set of concepts suitable for representing the most diverse type of systems.
ii. It offers a method for the scientific treatment of complex systems.

The behaviour of a cybernetic system has three basic characteristics: change, regulations and adaptation, see Figure I.

A *change* in the present state of the system upsets the equilibrium or balance and demands a restoration or elimination of the difference. Thus, a condition of thirst or hunger demands to be satisfied, an unsolved problem needs to be solved, and a new skill has to be mastered. Change is indicated by a discrepancy or difference existing between the present state of the system and some other preferred or desired state or level of operation. *Regulation* is the means by which such a difference is eliminated. The degree and type of regulation required is indicated by the feedback in the system. Feedback is said to exist when two elements of a system influence one another. When circularity of communication exists between

parts of a dynamic system, feedback is present. Such a system is called servo-mechanism, that is, a machine which is controlled by the consequences of its own behaviour, for example, a thermostatically controlled oven. Finally, the state to which the system changes or is modified indicates its level of *adaptation*, at which it has attained equilibrium or balance. Thus the thirsty animal drinks water until satiated, and the new skill is practised until a satisfactory level of performance is achieved. The degree of adaptation or the extent of the discrepancy in the system is indicated by the feed-back. The system modifies its behaviour until a state of equilibrium is reached. At each stage, learning is taking place in the human operator.

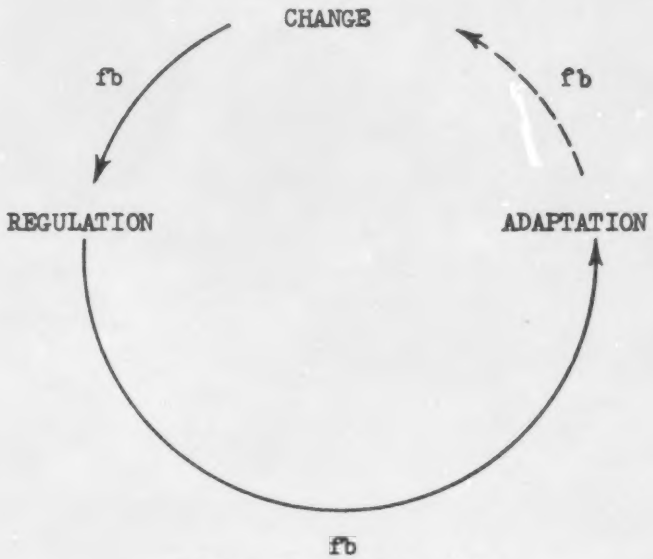

FIGURE I: The cybernetic model.

The study of cybernetics and skill have developed hand in hand, and in particular through the study of the human operator in man-machine systems, see for example Craik, 1947, 1948.

The relevance of the cybernetic approach to skill is further indicated by Oldfield's (1952) definition, ". . . skills involve behaviour which tends to eliminate the discrepancy between intention and performance" (p. 53).

The use of the term "skill", describes that behaviour in which perceptual, effector and feedback processes are serially organized both spatially and temporally, and are related to some particular outcome. Skill in this sense refers to a process whereby input information is related to past, present and often future predictable events. On the basis of this information the decision process initiates, and some effector mechanism

organizes, the most effective response. The discrepancy between the response and the desired outcome in the form of feedback information is the basis for modifying subsequent behaviour in this particular situation.

All skill involves the organization and integration of component processes, but to differing degrees of involvement or contribution. The final outcome, the response, is an expression of the linkage of these components. If skill can be regarded as such a process, then the many different skills and the different levels of skilled performance may be accounted for by the degree of involvement of such components and their effective organization.

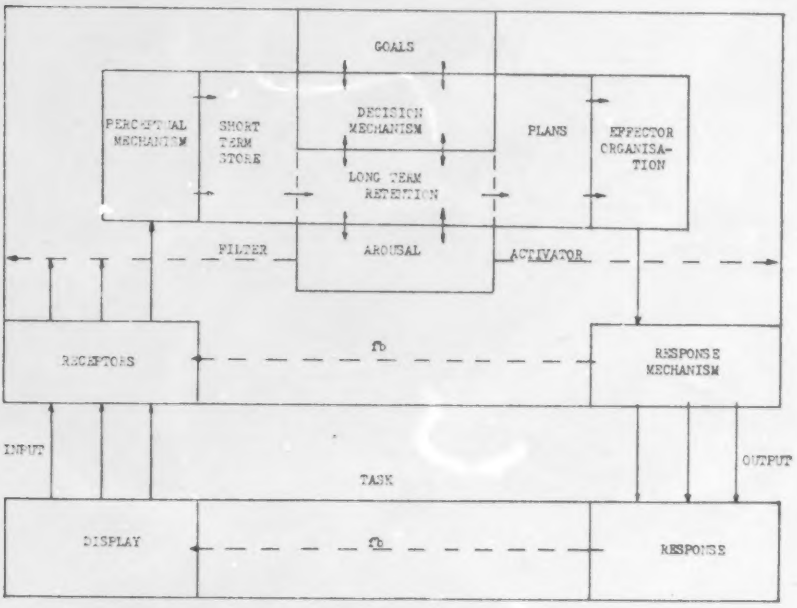

FIGURE II: Hypothetical flow diagram of some component processes involved in skill.

Crossman (1964) and Welford (1966) have provided hypothetical "flow diagrams" of some of the component processes involved in skill behaviour, see Figure 2. Such diagrams are based on the large amount of evidence now available and reviewed, for example, by Welford (1968).

Even though the flow-diagram is composed of a number of apparently separate processes, it should be realized that performance depends not only on the operation of each of these but on the relationships and integration between them. This system is never static or quiescent but is continually active, organizing, integrating and constructing; "Every bit of

evidence available indicates a dynamic, constantly active system, or, rather a composite of many interacting systems . . ." (Lashley, 1951, p. 135).

Skills, such as throwing, typing or playing chess, may be regarded as a particular combination of the component processes. Assumedly each skill involves different combinations and organizations of these components which participate at different levels of involvement.

The classification of skills as open or closed (Poulton, 1950) or as ballistic or strategic (Welford, 1962) describes which components are principally involved. An open or strategic skill, for example, playing chess, is characterized by stimulus and perceptual uncertainty and the uncertainty of outcome because of the number of possible solutions. This type of skill clearly involves perceptual and central decision making processes to a large extent. The effector involvement is minimal, for example, moving a chess man, and its degree of refinement has little or no influence on the outcome of the game. On the other hand, with closed or ballistic skills, the outcome is highly predictable and can be performed with little direct reference to the environment, as there is minimal stimulus uncertainty. Many athletic skills are of this nature, for example, sprinting, and the shot-put, and involve essentially effector and response organization processes. The criterion of success is usually dependent upon the effectiveness and degree of precision and accuracy of the response. Provins (1967) mentions a third classification, cognitive skills, to describe those tasks which stress the decision-making activities of the operator (e.g., problem solving in mathematics) in distinction to the perceptual and effector mechanisms which play a minimal role.

Welford (1969) summarizes this point of view regarding all skill as a compounding of processes:

> It has come to be recognized that there is no hard and fast line between sensory-motor skill and mental skills. Much of sensory-motor skill consists essentially of decisions which, in turn, require the recovery of information from memory, coordination of data in time and, more subtly, "strategies" implying prediction of the outcome of actions. All these are prominent in mental skills; the only major difference between the two types lies in the fact that mental skills typically do not involve the nicely graded motor action and fine perceptual discrimination commonly required in sensory-motor skills (p. 6).

Implicit in the use of the word "skill" is some quality of performance or behaviour. Common usage of the term implies some expertness or practised ability. In general, the traditional definitions of skill in the psychological literature extend this view; ". . . an integration of well-adjusted muscular performances" (Henshaw *et alii*, 1933, p. 2) and ". . . the learned ability to bring about predicted results with the maximum certainty often with the minimum outlay of time or energy or both". (Knapp, 1963, p. 163.) Skilled performance, as distinct from unskilled performance, implies that the component processes have been effectively organized to produce a response that is a close approximation to the

desired outcome. Such a response is said to be well coordinated or integrated, to be accurately timed and appears unhurried and effortless.

The cybernetic notion of skill regards human performance as the result of a felt discrepancy or difference between some plan and the present state of the system. The extent of the difference, the degree of misalignment or discrepancy, is monitored by the regulation system, in particular, feedback. The subsequent behaviour of the system is such that successive responses are made to eliminate the discrepancy between intent and action. When the goal or plan has been fulfilled, the system has adapted or attained equilibrium and the error feedback is absent or insignificant. In the case of skill, learning has taken place.

In terms of learning a skill, and hence, from a teaching point of view, the cybernetic approach, provides a number of very useful operative concepts. Two of these will be discussed:

i. Plans.
ii. Feedback.

i. A plan may be regarded as a hierarchical process in the organism that can control the order in which a sequence of operations is to be performed (Miller, Galanter and Pribram, 1960). The significance of the plan in the cybernetic model is that it indicates a state of disequilibrium or incongruity in the system, and when the relevant stimulus or perceptual information is present, moves the system to activity to reduce this discrepancy. The plan is a programme of "instructions" which directs the actions and responses of the operator to remove the discrepancy between intent and action. Thus an individual may have a plan to gain a degree at the university as well as plans for the forehand drive in tennis and the sequence of movements in playing a tune on the piano.

From a learning and teaching point of view, the way in which the learner constructs a plan is important. For example, individuals who have difficulty in forming an accurate plan of what is required (by some external criterion) will not be able to achieve the desired end result, no matter how much practice is given. Thus the athlete who cannot form an accurate plan of the western-roll technique will not be able to achieve a high level of performance. Highly skilled athletes have developed very precise and accurate plans. It is clear that the formation of plans should proceed at a rate suitable to the individual, with opportunity to explore, investigate and question so that the plan can be expressed in terms meaningful to himself—that is, coded and translated in his own terms.

The manner in which the plan is implemented and controlled depends on the time available to organize and monitor the movement. Where time permits, the movement is under direct sensory control and thus must take longer than 0·3 to 0·5 seconds to complete. Hick (1948) and Vince (1948) provide evidence that the least interval of intermittent functioning is about half a second. Such movement control is referred to a closed-loop behaviour. In skill behaviour the fact that voluntary movement is monitored and modified by sensory feedback has been demonstrated in a number of studies where delaying or distorting the sensory information has led to a breakdown in the serial organization of the skill (e.g., Lazlo, 1966, Provins,

1957, 1958). However, in high-speed skills such as the tennis serve or baseball swing, the complete stroke may be completed in less than half a second. Clearly such movements are beyond sensory control and once initiated, run their full course without further monitoring. This type of movement is under open-loop control. Although the intermittency sets a limit to the speed of decision making in the human operator, there is evidence that suggests the skilled performer develops an organizational strategy using the open-loop means of control to overcome this limitation. Larger units of action are formed and controlled in open-loop fashion (Bryan and Harter, 1899; Pew, 1966), thus the skilled typist and pianist may order and organize finger movements at the rate of 12 to 16 per second. Such a strategy has several advantages, for it leaves the decision-making mechanism relatively free for longer periods, and also ensures consistent, stable performance which reduces the feedback to be handled. The organization and grouping of larger units of action is achieved by the formation of a motor programme (Keele, 1968). The skilled performer uses an open-loop strategy and develops a number of motor programmes that permit consistent and stable performance (Glencross, 1970) and which place less demand on the central decision mechanism.

From a teaching point of view, the recognition of two types of movement control has important implications, particularly in terms of part v. whole learning, transfer of training, speed v. accuracy, the general time relations in practice and the timing of feedback.

ii. Both the formation of the plan and the process of regulation leading to adaptation, involves the use of the feedback in the system. Feedback may be regarded as any information available for regulatory and adaptation processes. It will exist in the form of proprioception (intrinsic feedback) and also as information from the exteroceptors (extrinsic feedback). Specifically feedback provides the learner with information as to what plans to form and how to form them. It provides details of how the plan may be implemented and then monitors how effective the response was by indicating the error, discrepancy or misalignment between the action and the intent. Finally, through feedback, information as to the appropriate adjustment or modification is provided. The central position occupied by the notion of feedback in the cybernetic model is emphasized by Annett (1969):

> The feedback concept is significant not simply because it suggests analogies between organisms and machines but because it suggests certain basic characteristics of the structure of behaviour. Rather than being simply run off as a result of prior stimulation, behaviour both simple and complex can be seen as governed by results at all levels (p. 36).

Feedback may be involved in setting a standard of performance as well as information necessary for corrective action. It may be in the form of knowledge of results, reinforcement, reward or punishment, teacher or coach comment, observation of one's own performance and the "feel" of the movement. All information, no matter what its source, may be used to ensure continued activity towards the reduction of the dis-

equilibrium, instability or non-conformity in the system and thus in reaching an acceptable level of adaptation and hence performance.

However, it is clear that the feedback must be in a form usable by the system. Thus in the case of skill learning, the learner must have feedback that is meaningful and that provides information as to what modifications to make and at what level in the system they need to be made. Welford (1966) says ". . . the information given should indicate the discrepancy between what is required and what has been achieved rather than merely give a reminder of what is required or some broad measure of achievement" (p. 15). In other words, both simple and complex behaviour may be seen to be governed by the results of the action at all levels.

In terms of change, regulation and adaptation, the cybernetic model makes meaningful the traditional problems and questions in skill learning and teaching. Instructions, demonstrations, visual aids and mental practice influence the formation and modification of plans. The distinction between open- and closed-loop means of control provide a basis for part v. whole learning, transfer of training and temporal aspects of practice. The contribution of feedback at all levels of behaviour directs the nature of knowledge of results, reinforcement and reward, error-correction and diagnostic teaching.

The art of teaching involves the ability of the teacher to recognize the demands of the learner in the learning situation. The cybernetic model offers a firm and meaningful framework for such an art to be fully effective.

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Left to right: Mrs. Ivor Burge, Queensland; Miss Ena Holland, Papua-New Guinea; Dr. John H. Cooper, U.S.A.; and Miss Margaret Stirrat, Sydney, enjoy a coffee break between Congress sessions.

A Thesaurus for the Science of Physical Education and Sport

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WITH the end of the Second World War, there began in Europe, through the systematic utilization of the collective specialized literature and through the accumulation of secondary documents, the acceleration of information output and of economic building. In more than 40 centres the national and a part of the international literature is documented. Most centres have arrangements to exchange publications among themselves and to distribute them to subscribing institutes or specialists. Till now this has been happening, and in Leipzig has been developed to perfection. It proved excellent so long as the conventional, non-electronic technique was capable of coping with the deluge of information. In the future the mechanical filing card index will no longer be sufficient, however, to equal the demands of speedy and planned research. This path to the future was first crossed at the University of Graz (Austria). There, since 1967, an automatic documentation is in the process of being developed. It has succeeded in demonstrating the convincing excellence of the electronic data processing in connection with the Mathematics Center.

Within a reasonable amount of time we will be capable of electronically accumulating and solving the research over a teletype machine. Regarding this initial experiment in Germany, we have decided, in addition, to introduce an electronic documentation of sports science and to found an information centre. The German Sports Union and the German Department of the Interior have already organized and financed this "Documentation and Information Center for Sports (DIS), so that the practical work could start in 1970. This work will not be done alone but in cooperation with the documentation centres of the German-speaking centres. Since an information centre has to be set up only according to the needs of its user, the interests were first explored.

In a survey a representative selection of potential users were questioned about their expectations, desires and requirements. The present

result makes it possible to estimate the kind and value of the desired information and to measure realistically the capacity of the central documentation.

Electronic accumulation and research requires a new type of "Thesaurus": a polyhierarchical order, no uniform but a multiform, open system, flexible, complete, and adaptable. Consequently by "Thesaurus" one understands therefore simply a collection of descriptions which are classified to facilitate the research. This index has therefore the character of a list that is easy to differentiate and to vary.

After the preliminary studies of the University of Graz a specialized "Thesaurus" was developed by me, which complies to the requirements and possibilities of an automatic information-retrieval system. With the structuralization of this collection, the recommendations of an internal convention in Cologne in 1967 were taken into consideration. It is based on the introduction and conception of a complex sports science which acts as an integrating science in cooperation with numerous related sciences. A knowledge of this model solves the problem of integrating the results of an established theory of this subject area into the whole. At the beginning it is necessary to include the neighbour or contact sciences into the documentation. Therefore, the first part of the Thesaurus contains a compilation of important concepts of the arts and sciences, which are based on sacraments for health education and sports. Through this compilation, structuralized fields have been formed which are modelled on the imminent classification of the contact sciences. This part of the Thesaurus can only become actualized in the documentation work when the volume of the literature utilization becomes considerably increased.

The second part contains the terms of the sport science in a narrower sense. It emanates from the fact that the beginnings of a sociology of sports, history of sports and psychology of sports are recognizable and that the sports medicine and sports education have already crystallized into independent disciplines. The compilation and grouping of these specialized areas was possible naturally only by the exchange of thoughts of specialists. As a central research area the abundant vocabulary of this movement is considered. The crucial point of the second part lies in the sports education, which is connected to the training instructions.

Now follows the largest section of the Thesaurus which contains the vocabulary of all types of sports. In order to alleviate the programmers of this work, the various heading groups had been parted according to single schemes. With the classification of material, first, the encyclopædia, rule books and prize-fighting regulations evaluated. This temporary collection was put before the sports officials of the special organizations for criticism and completion. So we might have succeeded in adapting the most variable part of the Thesaurus to the present level of development.

The retrieval system GOLEM (large accumulation-oriented, list organizing, inquiry methods) offers all advantages of modern EDP. At the University of Düsseldorf it is already in service in order to build up a literature documentation about philosophy (an endowment from the Volkswagen Corporation). That the East German Government has

ordered three EDP systems from Siemens proves the progressiveness of the system.

Through ribbons, the secondary programmes are transferred to the magnetic tapes of the electronic Large accumulator. The accumulated information is printed by the researcher of the computer, or is placed through the teletype to the disposal of the user.

The Thesaurus which I worked out meets the requirements of the retrieval system. It requires no classification and no fixation on standardized concepts. The structure is flexible and can be converted at any time. The catalogue of descriptions remains open and variably reducible and capable of being completed. With the questionnaire, the headings can be optionally connected so that a correspondence machine is possible.

The length of the questionnaire and the number of insertions descriptions is unlimited. With an accumulation capacity of one million concepts, a question of 10 descriptions was answered in about 30 seconds.

There is no doubt that this automatic sport documentation belongs to the future. You are heartily invited to make use of the service of the Cologne Documentation and Information Centre.

Delegates in attendance at a General Session of the Congress.

The Application of Research Results to the Practice of the Physical Education

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LEARNING, which is the most important thing in the educational activities, can be defined as the positive activity for "graceful living". That activity is not an effective one until it is organized on the basis of scientific researches.

Assuming that today's physical education is located in the field of general education, we can say the same thing about physical education. In other words, learning in the physical education is done through physical movements. The physical education should, therefore, be organized on the basis of scientific researches for physical movements. Organization on the basis of scientific researches does not mean only gathering scientific reports.

Recently, specialization of researches is accelerated by the development of research technique and the increase of information. This trend is natural and necessary for the development of research itself. Each result of this specialized research must, however, be integrated for the purpose of application.

Those arguments can be compared to the "organic evolution". The form and the function of an animal have been differentiated through the history of organic evolution. At the same time, these differential functions have been integrated by the nervous system. Consequently, each specialized function can work smoothly in co-operation. Thus it can be said that integration must be done in parallel with specialization even in the field of research.

In this article I want to introduce our efforts.

One of these efforts is to realize where each research should be located in the systematized field of physical education. The next one is to re-organize the research for the purpose of effective learning in the physical education.

One of the problems which we have been investigating for more than five years is running. Running is an instinctive movement and also an essential one in everyday life. The studies on running, therefore, have been prompted by the production of artificial legs, the rehabilitation for paralyzed or injured persons or the establishment of effective training methods for sportsmen in addition to the simple interest in the movement. They have been carried out to a great extent from the kinematic observation to the kinetic analysis.

1. Kinetics of Running

As a first step for this research we devised a new instrument which was able to record the force variations exerted by a foot during running. Running is based on the movement of both legs. It is, therefore, essential to measure the magnitude of force exerted by a foot against the ground in order to analyse the mechanism of running.

The development of electrical engineering in this century has explored the new methods in which the force can be converted into electric energy. For recording, a physical movement varies in nature from a very explosive one to a gradual and continuous one covering an extensive range both in magnitude and velocity. In order to overcome these obstacles, we used the PIEZO effect of the semi-conductive crystal. When an external force is applied to a crystal, its electrical resistance is changed corresponding to the magnitude of force. Using this equipment, we recorded the pressure of the foot during running at various speeds on the treadmill.

Various aspects of running were then recorded, with the crystal fixed to the toes and heels of running shoes, and were as follows:

1. In running each leg alternates between support phase and swing. The various pressure gradients indicate that the centre of gravity of the body moves forward to the point above the supporting foot and the toe exerts the force which propels the body forward.

2. Step length increases according to the running speed up to 450 m/min and decreases thereafter, while increasing rate of step frequency to running speed increases more rapidly at higher speed.

3. The results of the kinematic analysis indicate that the maximum speed in running is limited at first by the maximum step length and next by the maximum step frequency.

2. Coordination of Running

At the next investigation we analysed the leg motion during one step from the viewpoint of electrogoniometry and electromyography. We have a 16-channel electro-polygraph which recorded the electrical activities of leg muscles and force curves exerted by the foot during running.

It was generally observed that the foot strikes the ground almost under the body. Therefore, this support phase is almost entirely propulsive. EMG shows that the extensors of the leg are remarkably active in the support phase.

Tracings showed that though the antagonistic activities of leg muscles can be seen clearly at moderate speed, the higher the speed the shorter became the intervals of electrical discharges of each muscle. At the maximum speed, electrical activities of extensors and flexors are continuously seen. The results indicate that there is a limit in the increase of step frequency.

3. Energy of Running

It has been reported that there is close relation between energy cost and running speed. As a matter of course, the amount of energy expenditure depends upon the quantity of muscular activity. The direct relation of muscular activity to speed, however, has never been revealed in running.

For the purpose of this analysis, we devised a new integrator. The response of the integrator to an input of constant voltage is that the increasing rate of output of the integrator is proportional to the magnitude of the input voltage such as 1mV, 2mV, etc.

Using the integrator, rectus femoris and gastrocnemius were observed in the right leg during running at various speeds.

Our studies showed that the energy expenditure in running increases more rapidly than muscular activity according to the increasing rate of running speed. In the case of the hard exercise such as running, as the exercise needs the activity of the other functions in addition to the directly concerned muscles, the energy expenditure is necessarily over the amount of muscular activity according to the rate of speed.

Further experiments were undertaken with the subjects running with various cadences at different speeds. Running form was changed at a speed as follows: 1. Natural step; 2. Faster step; 3. Slower step.

Our studies showed that there was less electrical activity and less energy cost per step for the natural step than the other two. The energy cost per step was greatest with the slower than the faster step. It can be said that the effect of running form upon energy cost is within certain limits greater than that of speed.

4. Application to Physical Education

I have introduced our research mainly from the dynamic point of view in order to display how running is done But another approach for running is done which is necessary to organize an effective curriculum for learning in running. It is a research for human ability. Namely, we can say that motion pattern is the objective and man is the subjective in physical education; therefore, man, as the subjective in learning, must be analysed through his growth and development.

The first approach for this aspect is to examine the relation between the ability of energy output and running speed.

The results from research findings indicate:

1. That the running speed maintained for a certain period must depend upon the amount of oxygen intake.

2. That the person who can mark a good record at 5,000 m. running has an excellent ability of oxygen intake.

3. That there is a linear increase of maximum oxygen intake of six-year-old boys to maturity. Hence it can be estimated that man cannot run 5,000 m. at higher speed until he becomes matured.

4. That the development of motor skill in running is almost established at nine to ten years of age.

5. Reaction time is generally recognized to indicate the development of the nervous system. One hundred and twenty boys used in our research had their reaction time taken from six to fourteen years of age.

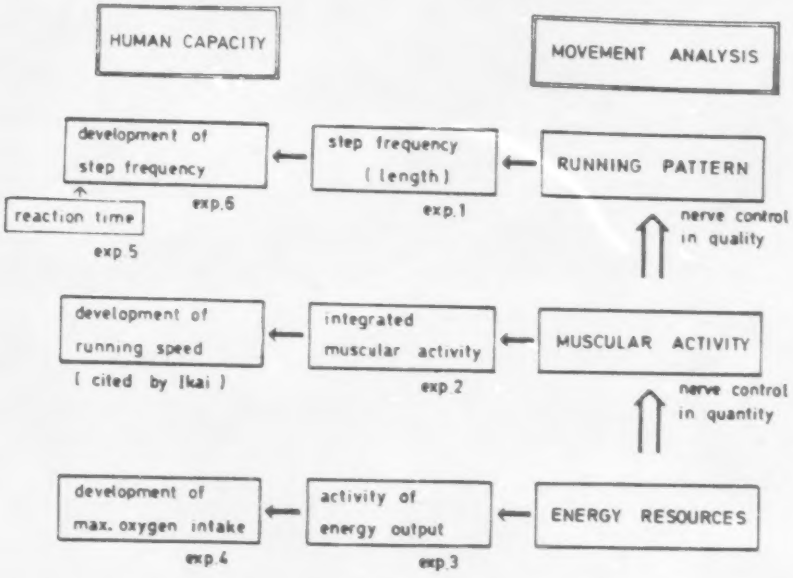

FIGURE I.

The results showed that 75% of total development is completed before ten years of age. This result agrees with those of development in step length and step frequency. Therefore, we estimate that since the nervous system which controls the physical movement is considerably developed before ten years of age, the generally used movement in life, such as running, is established before the same age.

From the abovementioned experiments, though further research would be necessary, I suggest an attempt to reorganize a new educational curriculum for running.

At first we will rearrange the results which we have revealed. Figure I shows the diagram of them.

Fundamentally, a certain amount of energy must be used in running; this energy should be supplied with physical resources stored in the body. Muscle transforms chemical into mechanical energy, namely, muscular contraction controlled by the motor nerve is conversion of potential energy into motion; moreover, the running pattern must be formed on the basis of the co-operation of nerve controls in timing, in spacing and in grading.

As for running pattern, experiment 1 indicates that the maximum speed in running is limited at first by the maximum step length and next by the maximum step frequency.

In muscular activity, experiment 2 indicates that electrical activities are increased according to the increasing rate of speed.

Experiment 3, pertaining to energy resources, indicates that the person who can run faster has an excellent capacity for oxygen intake.

Running is a movement to move the body as fast as possible; therefore, those three factors must be improved in order to obtain a better performance. As the human is the subjective in education, human capacity according to age must be taken into consideration in order to organize the curriculum.

As for energy resources, experiment 4 shows that the maximum oxygen intake increases with age up to the age of 18 years.

Regarding muscular activity, the data by Dr. Ikai shows that the maximum sprint speed on average increases progressively up to 16 years of age.

In running pattern, experiments show that motion pattern is considerably developed before ten years of age.

As is the case in most areas of education, there is a great deal of overlapping. The continuous process of learning—putting into practice, correcting, relearning and putting into practice — is the basis of our acquisition of skills. There must be, however, a variety of purposes through the educational processes; namely, a different kind of instruction should be mainly given during a certain period. The main purpose of instruction during a certain period must be determined by the integrated scientific researches.

I believe that human ability must efficiently develop if adequate stimuli are given during the right period. The right period means the period during which the functions concerning the ability are biologically growing.

In concluding this article, I want to propose a new curriculum for running according to our research results.

1. The instruction how to elevate one's step frequency with a certain step length should be mainly given before ten years of age. This is based on the development of the nervous system.

2. The instruction how to lengthen one's step with a certain step frequency should be given mainly from 11 to 14 years of age. This is based on the development of dynamic function of muscles.

3. The instruction how to keep one's running speed for a certain period should be given mainly from 14 to 18 years of age; this is based on the development of cardiovascular functions.

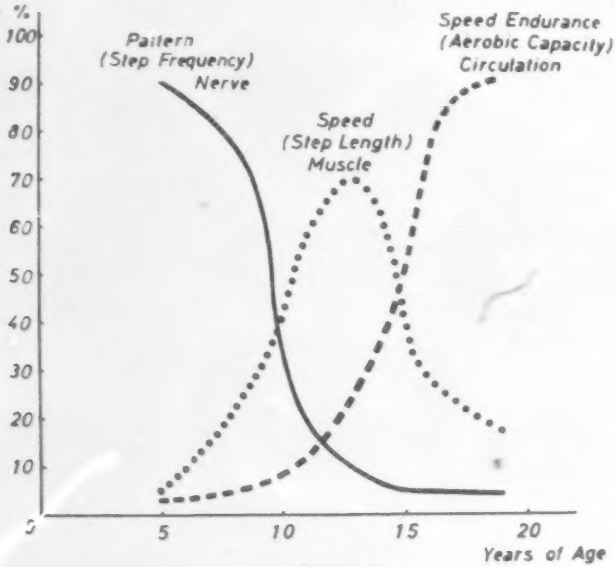

FIGURE II.

As I mentioned above, three kinds of lines show the overlapping process in advance with age in Figure II.

Physical Fitness Tests for Malaysian Schools

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My talk entitled "Physical Fitness Tests for Malaysian Schools" brings to you no more than a "Malaysian happening" in physical education.

Some time this month basic fitness tests will be introduced into the physical education programme of Malaysian schools. This marks an important milestone in the progress of physical education in Malaysia. The basic fitness tests will be taken by pupils of certain age groups and their performance recorded in individual record cards known as the "record of basic fitness". This project was conceived with the following objectives:

(*a*) To focus much needed attention on physical education in schools, with particular emphasis on the development of general fitness.
(*b*) To generate an awareness of the concept of physical fitness.
(*c*) To introduce some evaluative process in the school physical education programme.

Although physical education has been established as one of the basic disciplines with specific periods weekly, the subject continues to face formidable opposition in an examination-oriented curriculum. The idea that some "examination" value should be attached to physical education (how undesirable as this may sound) so that greater attention will be paid to the subject, was first discussed by the Technical Committee of the Schools Sports Council of Malaysia, the body sponsored by the Ministry of Education to look after schoolboy sports. A paper that was subsequently prepared was presented to the Ministry of Education, which, after giving it due consideration, recommended the scheme for immediate implementation. This acceptance of the concept of evaluation in physical education constitutes a major step forward in the teaching of the subject in schools.

Apart from the need to upgrade physical education, the basic fitness tests serve to stimulate pupils to condition themselves regularly and in the process become aware of the joy and benefits of being physically fit. Today, the subject of physical fitness has gone beyond the confines of the school. The public and national leaders have given serious thought to the pro-

motion of national fitness campaigns. Therefore, the launching of the fitness tests in schools is significant in its timing with the nation-wide interest in physical fitness and recreation.

Physical education as practised in Malaysian schools, seldom, if ever, comes in for any organized evaluation. The fitness test programme, limited as it may be, serves as an instrument of measurement that forms a necessary part of the teaching process. It is hoped that as the programme gets under way, interest in this area will be stimulated to the extent of stimulating further thinking amongst our local teachers and leaders of physical education.

Survey of Basic Fitness

In early 1969, a nationwide survey based on a pilot study was launched. A total sampling of 12,152 boys and 8,180 girls in the age range 11-18 years was taken.

The tests selected, listed below, were administered in two sessions in the following order:

1st Session:
1. Flexibility test.
2. Shuttle run.
3. Chinning (boys) and modified chinning for girls.
4. Leg lifts.

2nd Session:
5. Sargent jump.
6. Softball throw.
7. 600 yards run/walk.

State co-ordinators were used to brief the large number of personnel necessary for the administration of the tests. The processing of test scores and the development of standards using the Hull scale were completed in early 1970.

This programme is a beginning of an overall design to establish in our schools evaluation procedures in physical education in order to assess a pupil's progress in his physical development, participation in games and extra-curricular activities.

The authors of this programme are aware of the limitations and experimental nature of fitness and games skills tests, but if they bring about new thinking and participation from people who matter, the higher purposes of physical education will have been served.

EIGHTH CONFERENCE OF THE AUSTRALIAN PHYSICAL EDUCATION ASSOCIATION

The Fritz Duras Memorial Lecture:

Individualization—Specialization—Socialization: Three Aspects of an Educational Programme in Sports

LISELOTT DIEM

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This lecture is given in honour of a man whose aim as a sport physician and physiologist was not only physical education and its methods but above all: man as an individual.

I quote from one of his lectures 1965: "Providing physical exercises that will lead the individual to the fullest possible awareness of himself; providing situations for the development and mastery of organism that will lead to the fullest possible control of the whole personality . . ." (iii) providing opportunities of devoting oneself completely to the achievement of a worthwhile objective, of enjoying the greatest adventure of all: to reach beyond one's own limitations, and so become "fully extended". So far we have spoken about the individual; we must now add that nobody could be "fully extended" who, with such extension, would not achieve positive and constructive contact with other human beings. Here, too, physical education offers distinct learning possibilities by: (iv) providing experiences and training for the development of desirable human relationships between individuals as well as between groups, and for the establishment of a proper balance of dependence, independence and interdependence. Please let me now try a new interpretation of these thoughts in memory of the great educator Fritz Duras.

Education reforms are discussed everywhere in the world to-day. Reforms within the university and school systems, reforms of the learning

process and methods. Faced by mass culture, mass conformity, dictatorship of the computer and a possible de-personalization, a revolutionary younger generation tries to find the way back to individual freedom and critical self-determination — "Anti-authoritarian" education and "International solidarity" are the slogans of this revolution around the world. A new insight into individuality should become the basis of a critical new insight into society.

Individualization, Specialization and Socialization are the closely connected and mutually dependent aspects of this educational reform. In my concept the term "Sport" means physical education as well as physical training, because in the German language "Sport" nowadays is often used as a basic term: i.e., sport-sciences, sport-medicine, sport-politics.

What is the meaning of Individualization, Specialization and Socialization as basic principles of education? Individualization means the attempt to promote the development of the individual according to his own potential. Personal interest and individual inclination should be the determining factors for the necessary specialization. This specialization must be understood as a possible reinforcement and intensification of a learning process leading to a higher level of aspiration.

Out of this education which aims at self-determination and self-realization grow the binding ties to the society which are not based on pressure but on free decision. In order to take over responsibility for others, one must have experienced responsibility for himself.

Socialization, therefore, is the consequence of a correctly understood individualization; it is also defined as, I quote: "Self-confident acting . . . often from the daily social interaction of most people" or, in other words: Socialization is based upon the "transformation of social outer controls into inner controls of the individual". (Berrsndorf.)

The unconscious and conscious learning processes which are necessary for this socialization are clearly described by Jean Piaget, who takes the example of children's play with its rules made by children themselves, with its structural arrangement and the respective leadership-roles: "Children's games are admirable social acts. The marble-game, for instance, contains a system of manifold rules; a complete legal code and a whole jurisdiction." (Piaget.)

Social repression, however, in the form of compulsory adaption or submission to rules made by a higher authority without understanding and accepting them, does *not* lead to socialization. Even team-work, team-play, is, in its functionality, dependent upon the team-spirit of the individual team members.

Individualization thus has to be understood as a guide to critical self-comprehension. And Socialization means a self-confident and critical attitude of the individual towards the society and its traditional usages.

Menze criticizes: "It is wrong to understand socialization as a process of adaptation, as a process of submission to the social concept of "people do", which lead to an increasing destruction of the ego. . . . The essence of socialization is not the blind acceptance of material repression and

values of the respective structure of society, but this acceptance itself must be already an act of creative modification and detachment from the 'people do'. . . ." (Menze.)

Intellectual knowledge alone does not lead to critical self orientation. Maybe that sport, with its action-structures, has a special mission here. Sport is not primarily based on thinking about, but on the ability to act with knowledge.

In the field of sports the individual must always make his personal decisions. The runner, the jumper, the player; each competitor can only fight and compete out of freewill. Sport competitions, therefore, are not values in themselves; they become educationally relevant only when the child, the youngster or the adult has accepted, understood and comprehended this training and competition.

Individualizing physical education stands in contrast to generalized and academic instruction.

Thus, individualizing education should lead to a personal style of movement in contrast to the style-bound type of instruction which presents only one "correct" form of movement.

Exactness is the rule of "formal" method. Competitions in gymnastics, springboard-diving or ice-skating are still subject to this formalism; their grades of difficulty are often measured with mathematical precision.

This individual style creates sometimes new techniques which bear the names of their inventors, like as in medicine or mathematics, for example, in gymnastics the "Stalder"—at the horizontal bar, the "Stockli" at the side-horse, the "Streuli", in figure ice-skating the "Rittberger", the "Salchow" or remember since 1968 in track-and-field the "Fosbury"—flop, very well known now.

Competitive sport is a challenge for the individual to act creatively. This is similar to the dancer who needs a basic technique, but who becomes creative only by his individual ability or expression which dominates the technique. Therefore, a mastered technique is a pre-condition for an individual style.

But, individualization does not only mean development of a personal style of movement—it also means to activate the individual to self-learning. Therefore, we try to change compulsory sport subjects from 11 years more and more to voluntary activity.

Mr. Kiphuth, Yale University, reported to me, since last year, that instead of compulsory sports they introduced a variety of courses on a voluntary basis—the consequence was an increase and not a decrease in the number of participants. This enabled also the sport teacher to work more intensely with the individual student who came non-motivated from poor achievement.

We can only choose freely when there are possibilities for choice. Also, in your country yesterday, one lady interviewer told me how she hated hockey—but always she had to play hockey in school!

How may we motivate the student for self-decision? How can we challenge the individual to active and critical learning?

Let us compare different styles of teaching in this direction. One is, for example, called the authoritarian, the "drill" or "command" method. This style of teaching uses a more or less pronounced degree of authority and is based upon orders, demands, instruction and demonstration from the teacher. The student is permanently controlled by the teacher and has to move according to the teacher's ideal. The authoritarian style allows the teacher to transmit masses of information within the shortest possible time. But he does not know whether the acquired skills have been understood in their sequence and context. The teacher cannot say if the student who has learned these skills will be able to employ them independently in appropriate situations.

The authoritarian style of teaching is still widespread in the field of physical education. This style likes to use mass-drill for the purpose of public mass-demonstrations. Contrary to sport competition these gymnastic demonstrations present exact arrangements and æsthetic ornaments.

The Polish writer Kracauer describes "this 'mass-ornament' that consists of 'thousands of bodies', the movements are mathematical demonstrations . . . and the masses celebrate with enthusiasm the regular arrangement of the ornament. . . . The æsthetic interest is directed towards them. The bearer of the ornaments is the mass. . . . Here the man is a small fracture of a figure, he does not count as an individual, but only as a member of the mass. . . . The man must not think while he is forming a small part of the ornament". (Kracauer.) The colourful ornaments in the famous shows at the Sokol—and other socialist festivals are political demonstrations of power and masses. Also, the well-drilled showgirls of the cheer-leading groups at the American football games are æsthetic public-relation-drill.

At the big gymnastic demonstrations of former times these ornaments were used as symbols of social solidarity. Our German young generation has no more time for this kind of show.

Another critical factor in the authoritarian style is the teacher who knows only "his" method and who speaks of "my technique", "my system". This "suggestive" method ("Do not listen to anyone but me!") leads to situations where the athlete is dependent on a specific coach, "his" coach whom he trusts blindly. In some cases the athlete really believes that he is unable to start in a sports event without his coach at his side. This "unfree" athlete has been "made" instead of "having made himself". Every top performance is based on lonely decisions. No suggestion from outside can help here—only self-suggestion: "I can, I will. . . ."

Let us now look at the socially-integrated teaching style, which is also called the "democratic", the "active" method, or "to learn to do by doing".

This style is based on various integrating contacts: between teacher and student, student and teacher, and among students themselves. These contacts aim at gaining information from the student himself. The teacher presents movement-tasks as "problem-solving" method. The teacher stimulates independent search, discovery and experimentation as "discovery"-method. This reciprocal contact between teacher and student

leads to discussions, and the discussions lead to reflection. Our research has shown that in physical education lessons students are very seldom stimulated to ask questions. The "socially-integrated" method demands from the teacher more special knowledge than the authoritarian method, for the students' questions often lead to side-lines which must be taken into consideration; also, unspecific questions and problems must be directed towards the specific learning-process. The aim of this method is to motivate the students' self-activity and cooperation.

It is important to challenge the individual to lift, to raise, to extend his level of aspiration by means of critical self-comprehension and objective self-judgement. This level of aspiration should more and more surpass the "level of expectation" and become an "ideal level". The skilled and active student—especially younger grades—nowadays are often left behind at a "minimum level". In too many cases the physical education teachers of the lower classes are satisfied with the "law of good enough" (sufficiency level). In many school grades we find, sorry to say, an equalization at minimum-level instead of individualization as a challenge to personal top performance.

Within the method-of-challenge I will explain three specific phases of learning: the question "Who can . . . ?" is the first challenge for the student to spontaneous action. This phase represents a more or less intuitive or naive reaction. Let me call it better the "situative action". The teacher presents situations in which the student learns to master the situation. Therefore, in our curriculum is the basis of all rules of liability not the forbid but the opening of action in which the students learn to act independently. These "situations" must correspond to the level of aspiration of the different groups.

The next phase of learning would be the "reflective action". The teacher encourages the students to compare and to judge the different solutions which have been found. The students learn to find out the optimal quality of movement and what is specific for various techniques. This second learning phase is most important. It is often neglected! The student learns to understand different motor-learning phases only by perceptual training, by watching, comparing, identifying. He should learn to ask why a movement is done this way or that way. He learns to recognize and to explain how he is acting.

Even top athletes are sometimes unable to analyse their movements (Misangyi). For hours and hours they repeated a special technique without understanding it. Even small children are easy to interest in the "How", when they want to learn a "clever trick", i.e., when they are motivated for learning. "How do I throw the ball into the basket?" "How can I do the double jump?"

The "Why"-questioning demands from the teacher extensive knowledge in various sectors; he has to know mechanical principles and physiological facts. "What makes the Fosbury-flop so effective?"; "Why the pole in pole-vaulting has only a certain elasticity?" This "Why" should be a stimulus to the student; he must reflect and experience things by himself; he must learn to doubt and to criticize.

To summarize: intuitive and situative learning, connected with the reflective learning, lead to self-control and self-conditioning.

Let me explain four dimensions of this sport-specific self-directed learning. The first dimension refers to a self-understanding of the functional system, to posture and health-consciousness. Students come to know and to act with sensitive physical effects: like strength, agility or coordination.

Which speed do I use in a certain situation? How will I become more fit? What does agility mean? Which parts of my body are flexible or not flexible? Why is, for instance, the flexibility of the ankle-joints and of the spine of extreme importance? Which are the causes of a wrong posture-attitude or an ineffective movement? The value of this self-directed learning process lies in the information that Sport gives the student about his own body system, to know that "I am. . . ."

The second dimension is aimed at self-confidence. Only by sensitive, differentiated tasks, for example, in walking, running, jumping, hanging, climbing, balancing, etc., the movements will be refined-"mastered". The student becomes more and more skilled: "I can turn—I can react".

The third dimension refers to the variety of movement-creations, to the joy in invention, inspiration, improvization. Just as in language, first of all the elementary vocabulary has to be mastered. If we are secure, we start to modify the basic forms. We enjoy the variations. A skilled swimmer often "plays" with his swimming abilities: he dives, turns and jumps joyfully and even invents new techniques of swimming or diving or turning. These creative movements are a product of playful phantasy: "I have a new idea. . . ." "I create. . . ."

Creative movement is based on mobilizing the phantasy. Phantasy in movements does not mean imitation but invention. It does not mean, for instance, with small children, imitation of animals", as it is often misunderstood in primary school to be creative movements.

Even for the child in primary school, creative movement means invention with simple elements, for instance, in running, jumping, throwing and rolling. Creative movement means forming new compositions; we call this movement—"Gestaltung", this "Gestalt" is more than only a summary of single skills.

The fourth dimension refers to the will to achieve. Which performance do I expect of myself—can I realize my own expectations? It is important to know the own limitations of one's abilities also in first grade and learn to surpass them: "I will. . . ." The grouping of the class is often necessary in order to enlarge the individual levels of aspiration. Students often state that they feel themselves neglected in physical education: they find the classes "boring", "there is no challenge", "we learn nothing new, always the same tasks".

The individualizing teaching method prefers, also, "test-yourself" programmes. Even the "sport for everybody" applies in the first place these "test yourself" programmes: in the "Trim-Action", for instance, which is becoming popular in many European countries. Each participant

marks his own scores in a note book; the completed note books are honoured by a special badge. The one who cheats, cheats himself, because he knows that he is cheating; thus he spoils his game, for, above all, sport is a game even in competition. Who disregards the rules excludes himself even if he should win.

One other form of the "test yourself" programme is circuit-training. It becomes more and more popular because of its individualized methods. The circuit can be built up for first-grade children as well as for groups of adults, can be used as a general conditioning training or as a specific training for a certain sport discipline. Students may select the different "stations" by themselves; they learn to control themselves. They may intensify the "programme" by means of a higher number of exercises or by cutting down the given time.

Individualization also means self-control through self-judgement. Even a first-grade child should be able to understand why he has been given a certain grade. The teacher should explain any process of judging and students must learn how to judge and must find by themselves reasonable judging rules and evaluation.

This kind of self-orientation leads to many ways of additional self-training, for instance, we tried this as homework in physical education. The student gets a ball or a rope to take home to exercise by himself; or the teacher opens an extra grade for those who acquire during the holidays some new skills in swimming, judo, horse-riding or sailing.

Closely connected to individualization is the educational aspect of Specialization. After having learned to act on his own, and thus being able to inform himself, the pupil needs specialization in order to gain special skills. For this intensification he needs time.

Today, the classical ideal "to know as many details as possible of everything" gives way to a new insight: to intensify the learning process on the basis of few examples or, in our field of sport: in one or two disciplines the student ought to intensify his training. Training means an aim-directed, systematically increased exercising. The aim is to raise the level of aspiration or, in other words, to gain more confidence in one's own abilities.

In the course of an individually planned training-process the student experiences his own capabilities. He may reach his "ideal level" which he never thought possible before. He is like a high-jumper who has mastered a certain height: he reaches for the next level. High-jumping may serve as a good example, it shows that the student must be able to estimate his own abilities correctly because, if he fails the first chosen height in competition he is out. This reasonable self-estimation has to be learned at any age-level. And this self-estimation level is best when the success of performance corresponds with the aspired aim. Therefore, specialization leads to individual performance and to critical self-judgement based on experience.

Specialization should lead to personal top performance. Sport is inconceivable without competition—competition regarding time, measurements and quality of performance; it is very natural to compete against

one's own person — "to outdo oneself" — and to compete against the performance of others. Even two- or three-year-old children are eager to compete; they aim at new skills.

Each competition must arise out of free decision, no-one must be forced. The attractive feature of competition is the venture, the uncertain finish.

To quote an Olympic hurdle-runner: ". . . the sudden fright, if everything is present: the spikes, the starting number . . . the burning desire to win and, at the same time, the desire that everything might soon be over . . . hurdle race always means a venture, a risky undertaking into uncertainty . . . a short stumbling, a false move, a missed start . . . but this is the real essence of sport: glorious victory and deeply disappointing failure, side by side; but this recklessness in sport has become dear to me. Sport weights exactly; no former success helps!" (Z. Kopp.)

Each competitor "suffers". He seeks the adventure and at the same time he is afraid of it. This is the attraction, the adventure of competition, which is felt even by children; they try again and again to climb a steep staircase even if they have already failed.

Besides the Olympic competitions, all grades of competitive sport grows up, all kinds of competitions are carried out; there are regional records, records within a club, records within a family. Sixty-year-old people compete in tennis against each other as eagerly as the numerous participants in the, what we call, "open races for everybody". During the last few years in Europe, thousands of younger and elder people took part in the various popular competitions in running, walking, cycling, swimming. The participants are men and women of different age, whole families or groups of friends It is not the record which is hereby honoured, only the participation within a given time-limit.

Each specialist also in Sports looks for a partner who is his equal: the tennis-player, the golfer, the sprinter. In competition it is the rule the chances must be the same for everyone.

It is not true that a specialist must be only one-sided. On the contrary: the profound learning, searching and experiencing in one field enables him to understand better the endeavours in other sectors. This might be the reason that especially a top-performance athlete honours highly the achievements of others; for he knows how many hours of intensive trials and work, how much self-discipline it costs to reach a top performance.

We come to the third educational aspect. We have heard each process of socialization is based on "deliberate and self-confident action".

Especially in the field of sport we find typical examples for socialization processes. Olympic games never would exist if the different nations had not agreed upon international rules and laws in sport. Therefore, Coubertin, when he re-founded the Olympic Games in 1894, the first step was for him to join British, Italian, Belgian, American and German rules into the international "legal code of sport".

A new record set up in Moscow, in New York, or in any corner of the world, will be officially acknowledged if the international rules have

been observed. Soccer players from Brazil, for instance, play against a British team, and the referee may come from Czechoslovakia.

These rules do not only include measures and numbers. They include also laws of moral behaviour—well known as "Fair Play" rules.

The idea of "fair play" came from British play fields and has gradually penetrated social life everywhere. Fair action or unfair action is a question of conscience. Even children criticize each other: "We cannot play with you, you are cheating!" People who cheat—and in this way get an unjustified advantage—are not players" in the proper meaning of the word, they are betrayers. The laws of fair play may be offended—the spectators and all competitors who know the rules will always estimate and honour a fair-play athlete and a fair-play team.

Sport is an expression of our voluntary responsibility for ourselves and for others. Responsibility for others cannot be dictated, even traditional social systems are unable to do this. Responsibility and human relationship must derive from our free decision and insight as a consequence of self-realization and self-responsibility.

Therefore, sport activity then becomes a factor of socialization only when it is more than imitation and only acceptance of the rules. Also, children should learn as early as possible how to act as a referee, how to become a life-saver, how to give mutual help in sport; this will help them to understand the basic principles of well-functioning social action.

We repeat, therefore, that socialization means a possibility to "transform social outer controls into inner controls of the individual". Sport may give to the individual one of the possibilities to decide independently what he has to do, and by sport he can demonstrate his free will to achieve.

But sport has also created its own culture-patterns. In every sport event there are not only international rules and laws, there are also always created certain "ceremonies". For instance, the referee distinguishes himself by special dressing and special behaviour, teams exchange special greetings, etc. Coubertin was thinking always about these special ceremonies regarding the Olympic Games. He created many details for the beginning and the end of the Games, the handing over of the medals with fanfares, the triple platform for the three medal-winners, etc.

Coubertin also created the Olympic symbol: the Olympic Rings. Olympic ceremonies and symbols have found their way into worldwide social life; they are now symbols for international cooperation.

Socialization in sport means international understanding in the sense of internationalization. Only from this point of view to set up self-directed rules in the view of doing sport with each other can the Olympic idea be understood.

My lecture in honour of Fritz Duras shall be a small contribution in this direction: to give the single child more chance to choose his individual sport, to open more possibilities, qualified teachers and facilities for specialized training, and to motivate internationalization through social understanding in Olympic sport.

A Look at New Endeavours in Colleges Offering Courses for Primary and Secondary (Specialist) Physical Education in New South Wales

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It is an interesting co-incidence that the year in which an international conference in physical education is held in N.S.W. is also the year in which tremendous changes have been initiated in most establishments concerned with teacher education. In fact in my 21 years of lecturing I have never experienced such a fever for change with new ideas being discussed, explored and tried by the college staff of which I am a member. In order to report briefly to you, I have discussed the situation with various college principals, all heads of departments of physical education, and have studied the various calendars, and I am amazed and thrilled by the variety of approaches that I find being developed.

I have prepared a *table of information* which is issued as an appendix. It presents for easy comparison the nature of core and elective courses and other relevant information. Despite the fact that all the teachers' colleges are within the Education Department it is obvious that with courses, the Director of Teacher Education has encouraged principals and staffs to seek *solutions that solve their own specific problems* and which satisfies the educational climate within that institution.

Certain trends in thinking appear evident in respect to *Primary training*. A significant one is the attempt to *reduce* the number of lectures presented to students in each year of the course. Alexander Mackie Teachers' College has a first-year lecture load per week of 18 periods—the majority offer loads in the low twenties—and only Balmain reaches the thirties, but even Balmain reduces this to 24 for second- and third-year

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students. Opportunities are therefore extended to students for greater freedom to use college resource centres or local public facilities outside of lecture time.

Every college course in physical education is governed by its *total college policy* and it is significant that there is a growing tendency to initiate *general core courses* wherein staff work as teams *within an inter-disciplinary framework* to enrich students' understanding of the world in which they live. Thus at Armidale—the first College in N.S.W. to introduce such courses, the physical education staff lecture on "sport and physical education in the ancient world" and "sport in the Australian society"—to all students within the College. Balmain College has instituted an eight-hour-a-week course for all second-year students entitled "Man in Society" wherein during the first two-thirds of the year students study the problems of industrialization in two cultures and in the remaining sessions elect two areas of expression to organize and prepare their ideas for public presentation. Physical education plays a part in both these areas. Lismore College presents three cultural background courses—the "arts"—the "sciences" and "society" to all students. Alexander Mackie has an inter-discipline course entitled "teaching" in which the physical education staff make a contribution. Balmain College has also introduced an inter-disciplinary course in child growth and development and another in "foundations of education" where panels, including physical education staff, participate on equal terms with other disciplines and at a richer academic level.

The development of this approach I regard as a wonderful innovation into N.S.W. Colleges and represents an attempt to break down the barriers of the closed-shop subject-discipline approach which I think has contributed to the general teacher's lack of understanding of the role that physical education should play in the education of the child.

The reduction of overall lecture time and the introduction of general core courses together with the growing trend to include *elective studies in depth,* some of which are quite extensive, e.g., Armidale 4 p.p.w. for six semesters and Wollongong 10 p.p.w. (3.3.4) over three years, produce problems that are worrying to administrators both at college and within the service. It means that the available time that can be shared by the subjects for curricular courses is now extremely limited and there must be unequal opportunities for training in the curriculum areas. Most colleges attempt to present a concentrated *physical education core course* in first year, e.g., Alexander Mackie and Balmain, while others, e.g., Mitchell College of Advanced Education, spread the core course in selected semesters. But the actual lecture period allocation to physical education for courses allied to the syllabus of P.E. for primary schools is *declining* rapidly, e.g., Balmain, which had 8 p.p.w. over two years now has only 5 p.p.w. over three years. Lismore has only one period per week for one semester for curricular studies in physical education. Sydney College has one p.p.w. in each year. Wagga retains 2:2:1 and Newcastle 2:2:–. Wollongong requires one p.p.w. in one year (for those who did not elect to do the curricular study in physical education).

Various attempts have been made to resolve this problem and to relate it to the realities of the primary school needs. Physical education in the State schools is usually found as an "expression" period of sport with no skill teaching except for the talented, special swimming instruction and some folk dancing. Some schools are introducing gymnastics and educational dance but at the moment it appears more in club activities than the normal class situation. Realizing this situation, most heads of departments are keen to extend the *elective* system and it is finding expression in two forms: i.e., physical education as a *major study* and as a *minor study*. All heads of P.E. departments believe that some form of specialization is necessary for the teaching of physical education and now, as never before, when it is now impossible to find sufficient time to train students adequately in all subjects of the primary curriculum.

Wollongong has actually *grouped its "practical" subjects*—music, art, craft, physical education and natural science and allow students to elect two of these for study. Armidale attempts to attract as many students as possible to its *minor* elective (practical course) for 3 p.p.w. for one semester and has this year involved 85% of the men and 65% of the women. Balmain has its *supplementary* course (2 p.p.w. for one semester (half year)) which provides an opportunity for those who are interested to do a short practical course—as well as those who are directed to do so. Wollongong *prescribes* for all students a one p.p.w. per year course for *personal skill development* and Lismore has a similar scheme of 1 p.p.w. for two semesters. I regard these *minor practical studies* aimed at personal development of the student to be of vital importance because by such contact, students' *attitudes* may be developed towards the values of such experiences to the individual. Until this becomes a fact appreciated within the community at large and by academic staff members in particular, physical education will continue to be regarded with suspicion in an academic curriculum.

The development of *major studies* in physical education provides a welcomed opportunity for colleges to treat the subject in depth, and, in fact, to prepare a teacher capable of accepting responsibility for the practice of physical education within the primary and infants' school. It might well be needed, as is believed so intensely by one head of department for *full* specialization to be urged for the primary schools. As colleges of advanced education develop there must also develop full specialist courses that offer training for both primary and secondary specialization in physical education. This course of action must be considered because it appears as a logical extension of the major elective scheme working in most colleges as a result of the planning for three-year courses. I believe its implementation is imperative because it could provide a real link with the formative years of the middle childhood period when the skills of an individual's culture must be practised and practised so that they become part of the individual's modes of expression whether as an adolescent and as an adult.

Some colleges are offering *bridging* courses. Alexander Mackie and Lismore are concerned with the poor standard of personal skill and fitness evident in the adolescent who enters college. Mackie tests its students and directs them to bridging courses which are fitted in to suit the student.

Lismore is developing an individual teaching method to overcome this problem and I imagine all colleges have to make some provision to cater for the wide range in students' physical abilities. Balmain *guides* its weak students into the supplementary courses (short course electives) after the assessments of first year.

Balmain appears to be the only college providing a general core course for teaching children with deviations from the normal in growth and development and in which scheme physical education lecturers make a contribution, e.g., in perceptual-motor training, and adapted physical education programmes for the retarded and gifted. Students select a special study project and will teach in selected schools with retarded children, culturally deprived children, children with language difficulties, and gifted children during practice teaching at the end of this year.

Some colleges provide within the curriculum a block of time for team training or recreation of a physical nature, e.g., Wollongong with a club period adjacent to the lunch hour, Balmain with a sports union period last on a Wednesday.

Many colleges are approaching physical education from the movement study approach, with the concepts of Laban and Kephart being developed alongside those of mechanics and physiology. Gymnastics and dance are the basic physical education media used but they can only be adequately treated in the major elective courses.

Many colleges are also emphasizing the fitness approach in the core courses or through a special course for personal development, e.g., Lismore and Wollongong.

Some colleges emphasize creativity, e.g., Armidale Sydney and Newcastle. Newcastle has no special time for studying sports in depth like Balmain so encourages a student's use of creativity in the games programme. It also supplements this by encouraging students free when the schools have their sports period to assist in this programme. Balmain, in it foundations of education course, has a team of educationalists, artists and physical educationalists taking a 15-period course in creativity.

Because physical education is so expansive, the temptation to teach all aspects of the subject within a few lectures faces all lecturers. To avoid this Balmain has concentrated its physical education course on gymnastics and dance and has been able to retain another time slot on the first-year timetable for instruction in the sports played by primary children, i.e., the games method course (in which each woman does women's basketball and either softball or soccer and each man cricket and football) that is, where two sports only are studied in *detail*, rather than attempting to give fewer lectures to more sports.

An interesting new approach being used in some N.S.W. colleges is the *subject team teaching* approach, e.g., Wagga uses three staff for two sections of students and each specializes in one area—with the students changing over at set intervals during the year. Balmain uses five staff for four sections in its games method course on Monday and Wednesday afternoons, and once a sport has been treated the students change lecturers in order to work at their second sport.

Wagga is planning to introduce a special *distinction course* in physical education, to enable outstanding students to gain additional enrichment in the subject. Wollongong is able to go even further, it offers outstanding general students at the end of the first year an opportunity to fill any vacancies in the second-year specialist group. This, I think, is a wonderful idea.

Several colleges are experimenting with teaching all groups co-educationally. Armidale has co-educational groups for all practical work. Others are planning exercise *laboratories* for major study areas, e.g., Alexander Mackie. Westmead is making *use of a school* that resides in its grounds. The children are used for observational studies and pupil testing by the students, while the physical education staff are able to assist the teachers with demonstration work and the loan of equipment.

What is happening within the specialist physical education courses? At the present time only two colleges have courses leading to the Diploma of Physical Education—each three-year courses of some standing, and for which Perth University has given reasonable accreditation for students wishing to continue to the degree.

Sydney Teachers' College has three major strands to its course—a general course which is the same for all college students, a professional strand and a special physical education curricular course. (21 : 22 : 22 p.p.w. for first-third year respectively). All students elect in the general course *one* area for two years' study. The curriculum course covers *three* areas—the theory of physical education, the science of physical education and applied kinetics. These strands are continued into second year (with the addition of a course in music or art with the general course) and third year where the general course is replaced by a special physical education elective (or by the honour's course) and health education. A fourth year is available for students who elect to specialize in health education, in addition to extending their physical education knowledge but it has not yet been awarded graduate accreditation by the Public Service Board.

The physical education elective programme enables students to specialize within one of these areas of special interest—"physical education and society"; "health education"; and "facilities". These studies have both theoretical and practical components.

In the applied kinetics course in third year students may specialize in *one* practical field, e.g., gymnastics, dance or sports. This new endeavour has appealed to staff supervising practice teaching. Students are observed to have a much deeper insight in their special area and to apply this facility when helping children in other areas of skill acquisition.

The honour's course is a special course which replaces the general elective course for students who attain at the end of first year 70% average of marks and who maintain this at the end of second year. This course "comprises practical participation in original research in comparative primate anatomy and primate locomotion; dissection and preparation of specimens and models; application of the method of photographic analysis to the study of locomotor patterns" (p. 196 Cal.).

The diploma course is conducted within a framework of other disciplines — with lecturers outside the physical education department sharing largely in the programme. In addition, the student is presented with an overall programme which enables him to teach physical education competently at all stages of a child's schooling.

Wollongong Teachers' College approaches the training of specialist teachers with fairly similar emphases but some differences. Some of these differences recognized by the Wollongong staff are:

(*a*) During the first year the special students embrace a course similar to general primary course students, thereby enabling them to do a general primary practice teaching session, but they do not devote the same time to the general curriculum courses as do the primary trainees.

(*b*) The first two practice experiences are conducted within the primary schools. It is not until the third practice session that the students teach full-time physical education, and this is programmed during third term when the students spend one day a week in the high schools.

(*c*) Wollongong staff believe that their course has a stronger academic emphasis with three-quarters of lecture time devoted to this emphasis and which time is utilized by mostly non-physical education staff. (A second subject must be studied in depth and this may be taken at the university.) Both colleges welcome an interdisciplinary approach to the training of its students and seek to maintain this training within close association with students of other disciplines.

(*d*) A greater emphasis is placed on the communication skills wherein students receive a greater common exposure to the communication media of language, art and music.

Both colleges endeavour to provide a background in preparation for research activities with Sydney's honours course providing a real stimulus for participation in actual research projects. Both colleges also expect students to engage in field work and they give accreditation for attainment of certificates for coaching or umpiring in allied areas. Wollongong has also a point system functioning, requiring participation in at least three of the four service areas:

Children's training camps.
Camps — organized for various purposes, e.g., Church, practice teaching.
Play centres and swimming schemes.
Community service—YMCA, Scouts.

By attempting to provide such an overview I imagine that I have produced many errors of distortion—nevertheless, I hope I have been able to show something of the ferment of ideas being expressed experimentally in so many places and of the answers being suggested for preparing students to face the realities of teaching with confidence and competence. It is a wave of activity of which I have never seen the like, and the trigger for this release of energy has been the introduction of the three-year course of training following so quickly upon the new six-year high school course.

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Staff had to face seriously the problems of the population and knowledge explosions, the tremendous technological advances in educational aids, and the changing nature of educational needs. I hope that I have been able to convey something of the revolution I found occurring in the colleges and its effects upon the physical education courses developing for the general primary school teacher and the secondary specialist teacher in physical education in New South Wales.

A look at Physical Education in Teachers' Colleges in Victoria with an emphasis on New Endeavours

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IN the 13 State teachers' colleges in Victoria there are 10,000 students in training this year but less than one-third of these has any contact with intensive physical education activities or, indeed, with required physical education of any kind.

At the present moment there are no specialist courses, and physical education is confined mainly to students in primary colleges who are taking a general course for primary teachers. However, general inservice training for those already qualified elsewhere in physical education is provided for both secondary and technical teachers to enable them to complete their qualifications.

The Melbourne Secondary Teachers' College offers a course leading to the Trained Secondary Teachers' Certificate (Phys. Ed.). This allows the two-year Dip. Phys. Ed. students from Melbourne University to complete a general teaching certificate, thereby qualifying them to teach another subject besides physical education in the secondary school. In 1970 there are 181 students taking this course. A similar course at Melbourne Primary Teachers' College offers a general certificate to Dip. Phys. Ed. students who wish to teach in primary schools. Both of these certificates represent three years of training. However, as the physical education course content for these students comes under the University of Melbourne, it is not within the scope of this paper.

Monash Teachers' College is hoping to include physical education in 1971 in a four-year course for Higher Diploma of Teaching. This will cater for students wishing to teach physical education in secondary schools

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and at the same time study two other teaching subjects. It is also probable that the Secondary Teachers' College Latrobe University Centre now being established will also be able to offer full-time specialist courses in physical education.

But these ventures are all in the future. They represent attempts by the Education Department to provide more trained physical education teachers in secondary schools to supplement the output from Melbourne University, which at the present time is the only source of physical education specialists in Victoria.

It is therefore true to say that in 1970 there is no specialist course in physical education in any Victoria State Teachers' College. However, our subject forms an integral part of the training of every primary teacher in Victoria. If we go back 20 years we find a one-year course for Trained Primary Teachers' Certificate (T.P.T.C.) within which physical education was allotted one period per week. The obvious outcome was that emphasis was placed on method of teaching the subject in the primary school and the activities taken were those suitable for primary school children. With the introduction of the two-year T.P.T.C. in 1951, and more recently, in 1968, the three-year course for Diploma of Teaching, the time allocation has been increased and the emphasis has shifted from method alone to activities taken at the individual's own level. Physical education is therefore truly seen as an avenue of learning, an educative experience in which the activities undertaken are a means to an end—that of developing each individual student.

Physical education plays an important part in the total educative process involved in preparing young people to teach in the primary school. It is the subject which provides students with the opportunity to develop their own health to its optimal level through both its practical and academic content.

It is no longer acceptable that a course in a primary teachers' college should be mainly concerned with primary school method and physical education should be no exception. In the words of the Pryor Report:

> ". . . the basic assumption . . . for the preparation of teachers is that the quality of the person matters more than anything else. . . . The Committee has rejected the idea that teacher preparation consists of requiring a sudent to master the contents of a prescribed course of study and certain pre-determined techniques and skills which are offered as 'the method of teaching'."[1]

Physical educationists, through their subject, have a unique part to play in helping to guide these young teachers towards maturity and full acceptance of their responsibilities in the teaching profession.

In Victorian primary colleges, physical education is combined with health education, so that the subject is termed health and physical education and as such must be studied by all students as, at least, a twelve-month curriculum study. It is also available equally with other subjects as a sub-major or a major study in the diploma course, which means a study of three or four hours per week. Students entering college have just completed an intensive year of academic study in preparation for matriculation, and many have never known or have forgotten what it is like to

engage in strenuous physical activity. Therefore, it comes as somewhat of a shock to find that participation in physical education is an inescapable requirement of becoming a primary teacher. A higher level of personal fitness is required and great emphasis is placed on the development of a sound attitude towards total health through partcipation in as wide a range of physical activities as possible.

In an attempt to give every student a sport in which he may become interested, most colleges provide a variety of activities for sport on Wednesday afternoon. A weekly inter-college competition provides regular competition for some *700* students in all the traditional team games. In addition, coaching in skills is offered in most of these team sports and also in varied activities such as fencing, horse-riding, judo, ice-skating, archery, scuba, dry skiing, water skiing, sailing, etc. Inter-college carnivals in athletics and swimming provide the opportunity for students of all colleges to meet and compete together and also to gain experience in organizing and conducting such carnivals.

The health and physical education courses cover a broad spectrum of topics, but at the same time, provision is made for students to specialize and study in depth areas of their own choice, both in the practical and theoretical aspects of the course. Major studies in health and physical education place emphasis on outdoor pursuits and introduce all students to adventure-type activities and organization of camps. Three primary colleges have now acquired country or seaside camp sites and are busily planning their future development. Extensive use is also made of National Fitness Camps and areas such as Wilson's Promontory and the Grampians.

With the increase in leisure time in the community, lecturers in physical education are increasingly aware of their responsibility in educating students to take their place as recreational leaders. Plans to equip students to meet this challenge form an integral part of all major studies undertaken.

The first graduates of the Diploma of Teaching course will complete their training this year and begin their careers in the schools in 1971. Of these graduates, 124 will have taken health and physical education as a major study. In primary schools it has been traditional for the grade teacher to take responsibility for the teaching of physical education in his own grade. In the past this has generally proved disastrous and has often led to a situation in a child's life in which for seven years physical education (as distinct from sport) has been totally neglected, so that by the time the child enters secondary school the damage has been done. Patterns of non-participation and lack of skill have been established and we are well on the way to developing another spectator rather than an active participant. I believe that sound programmes of physical education will only be possible in the primary school when trained and interested teachers are placed in charge of the subject. An experiment is to be begun in Victoria in 1971 by placing students who have majored in health and physical education as co-ordinators of the subject in large primary schools. In this way, those teachers who have a specialist training will be responsible for the subject rather than those who may be neither equipped nor interested in truly educating children through the medium of physical activity.

However, to expand this scheme of a co-ordinator in each large primary school it will be necessary to maintain a constant flow of enthusiastic young teachers from our primary colleges who have specialized in health and physical education in their college courses.

As we complete the first three years of the new Diploma of Teaching (Primary), it is necessary to reappraise the courses we have established, to concern ourselves with possibilities of integration with other disciplines and to undertake research to ensure continuing development, so that we will be always reaching out towards new endeavours in physical education.

At this time, Victorian teachers' colleges are moving towards a future in which each individual college will be autonomous under its own college council. In this era it is well within the bounds of possibility that with adequate facilities and staff, more of these colleges will be able to offer specialist courses in physical education. Our present courses have laid a firm basis for this and we are now able to look forward with confidence to the future of physical education in Victorian State teachers' colleges.

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[1] Pryor, L. J.: "Report and Recommendations of the Advisory Committee on the Three Years' Course of Training for Primary Students", Education Department, Victoria, 1967, p. 11.

The Professional Preparation of Physical Education Specialists in Australian Universities for Meeting the Challenge of the Future in Schools and the Community

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LIVING in a technological age deprives man of one of his most basic requirements, namely, that of movement. As a biological organism, he has evolved over millions of years in a natural environment in response to pressures for mobility and endurance, yet during a brief period of approximately 50 years, the intense desire for progressively encompassing labour-saving devices has altered the mode of living for the majority of our Australian population. Modern man, in changing his physical way of life to meet the needs of an urban society, has interfered with his biological adaptation which was achieved through a long process of natural evolution. There is now well documented evidence available which demonstrates that such a rapid change may indeed threaten man's ability to biologically adapt, and our non-vigorous, over-stimulated life (Figure 1),[1] together with a rapidly changing environment, is bringing us new problems in the form of an increasing incidence of degenerative disease such as, for example, cardiovascular disease.

It is important for us to realize that *Homo sapiens* is physically an animal and as such must have a basic amount of physical activity for his biochemical processes to function normally. Wherever possible, we should attempt to return to at least some of our basic living patterns, and one of these natural phases in our evolutionary history is physical activity. It is high time that modern man awakened to the fact that any alteration

to the physical or biotic environment should be neutralized by appropriate compensatory mechanisms. Recent discussion of world conservation and pollution is encouraging, but to conserve our environment is not enough; we must also conserve man.

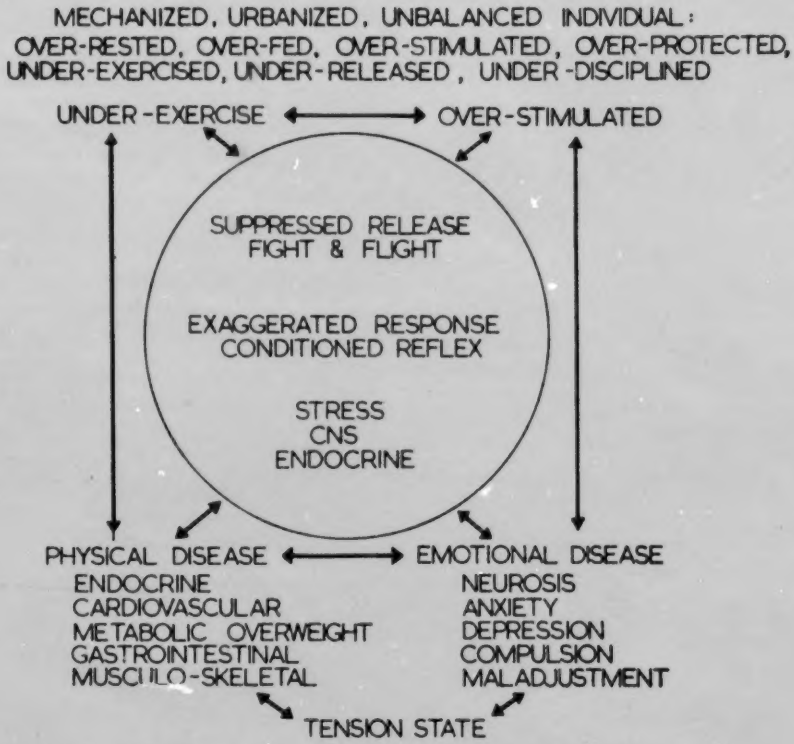

FIGURE I: The under-exercise over-stimulation syndrome.

What Can Be Done about These Problems?

As physical educationists, it is essential for us to consider man within the framework of his urbanized and automated environment, because he cannot be separated from it and is an integral part of it. The physical educationist of the 1970's must be aware of this fact when he attempts to physically educate the community, and must be thought of as a social service worker in the overall field of education. Preventive, physical and, to an extent, social medicine, will be his major pursuit; he should be trained with this philosophy in mind, and must understand that he is working in the broadest sense in the area of human biology. Thus an

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education of a person's physical being from a human biological point of view must be the goal of physical education today, with activity being used as a major tool to obtain this goal.

This then leads us to the major point of this paper, namely, that of the professional preparation of the physical educationist of the future for the schools and the community. Only professional preparation at the university level will be dealt with, as this is a specialized level in itself. This is not to say, however, that it is the most important level, as it is only a part of the whole.

TABLE I

An example of a Bachelor of Science Degree Majoring in Physical Education

(Biologically oriented)

First Year :		
Biol. Sc.	..	Animal biology
Biol. Sc.	..	Human biology
Phys. Sc.	..	Physics/chemistry
Soc. Sc.	..	Psychology
Second Year :		
Biol. Sc.	..	Biochemistry, human physiology
Biol. Sc.	..	Gross anatomy, histology and embryology
Phys. Ed.	..	Biomechanics*
Third Year :		
Biol. Sc.	..	Mammalian physiology, functional anatomy
Phys. Ed.	..	Biomechanics*
Phys. Ed.	..	Motor learning and motor capacities
Fourth Year :		
Phys. Ed.	..	Physiology of exercise, growth and development
Phys. Ed.	..	Sports medicine, biomechanics*

* The theoretical and practical study of the anatomical and mechanical analysis of human movement.

What Should a University Offer to Prepare such a Physical Educationist?

First, it is important to examine very briefly the function of the traditional British university so that we can orient ourselves as to its present position and responsibility to the community.

In the past it was the traditional seat of learning, with a strong academic bias. Since World War II it has slowly become a more professional institution with a reasonably well balanced academic and professional orientation. It was during the early development of the professional or vocational era that physical education was first introduced into the Australian universities. It was also at a time when there was little knowledge about man's developing problems in his environment, and it was difficult to convince the academic powers-that-be that the study of human physical performance was a valid university discipline for the latter part of the 20th century and beyond it.

I am quite sure, however, that the climate for a steady development of physical education at the university level is now ripe. This is, however,

only provided that we "fall into line" with the basic philosophy of the Australian university. The following points may help to clarify this.

First, we should develop an academic strand in physical education. Such a course would be centred around the biological and social sciences and would be aimed at producing mainly researchers and university lecturers for physical education. There would be less emphasis on practical biomechanics (activity skills) than in the professionally oriented course, simply because it is necessary to train a researcher in depth, especially in his basic science subjects. Those of us who are teaching in the field of physical education are virtually dependent on the researcher to formulate the body of knowledge with which we educate our students. We must also rely on the investigator in areas cognate to physical education as well as those working in our own applied discipline, if we are to teach the facts about the art and science of human movement.

TABLE II

An Example of a Bachelor of Science Degree Majoring in Physical Education

(Behaviourally oriented)

First Year :		
Soc. Sc.	..	Psychology (measurement and general psychology)
Soc. Sc.	..	Anthropology
Biol. Sc.	..	Human biology
Phys. Ed.	..	Biological basis of physical education (functional anatomy, human physiology)
Second Year :		
Soc. Sc.	..	Social psychology
Soc. Sc.	..	Sociology
Phys. Ed.	..	Biomechanics*
Third Year :		
Soc. Sc.	..	Social psychology
Soc. Sc.	..	Sociology
Phys. Ed.	..	Biomechanics*
Fourth Year :		
Phys. Ed.	..	Physiology of exercise, motor learning and motor capacities, growth and development
Phys. Ed.	..	Sociology of physical recreation, biomechanics*

* The theoretical and practical study of the anatomical and mechanical analysis of human movement.

Unfortunately,[2] at the present time our field is full of "theories". Thus it is that we in the British Commonwealth have hardly progressed beyond the era of "old wives' tales" in physical education, although in the last two decades a considerable body of knowledge has been formulated in Europe and North America.

There will certainly be criticism from some members of the physical education fraternity in Australia at the mention of such a course. They will maintain that everyone must do ALL the basic skill work in order to become a qualified physical educationist. However, the forward thinking professional in our field fully realizes that we in Australia have hardly

progressed in our professional preparation of the physical educationist in the last 20 years.

It should also be emphasized that only 10 to 15 per cent of students would enter such a science oriented degree (Tables I and II). Naturally it would only be the students that can adequately handle the challenging basic courses presented in Australian universities. The remainder entering university-level physical education would do the professionally orientated course to be mentioned below.

TABLE III

An Example of a Bachelor of Education or Physical Education Degree Majoring in Physical Education

(Professionally oriented)

First Year :		
Biol. Sc.	..	Animal biology
Soc. Sc.	..	Psychology (measurement and general psychology)
Phys. Sc.	..	Physics/chemistry
Phys. Ed.	..	Functional anatomy, biomechanics*
Second Year :		
Soc. Sc.	..	Anthropology or sociology
Biol. Sc.	..	Human biology
Phys. Ed.	..	Human physiology, biomechanics*
Third Year :		
Ed.	..	Educational sociology, educational psychology
Phys. Ed.	..	Physiology of exercise, growth and development, biomechanics*
Phys. Ed.	..	Professional area—methods of teaching, organization and administration of P.E., history and principles of P.E.
Fourth Year :		
Phys. Ed.	..	Motor learning and motor capacities, biomechanics*
Phys. Ed.	..	Sports medicine, sociology of physical recreation, biomechanics*

N.B.—Practice teaching in physical education would be carried out for 12 weeks, spread over the third and fourth years.

* The theoretical and practical study of the anatomical and mechanical analysis of human movement.

What would university academics think of such a course? Once they realized the need for a study in depth of man's human physical performance they would welcome it with open arms. They have rejected our courses in the past on many grounds (some of them quite invalid) but one of the major reasons is that they have lacked academic depth.

Now let us turn to the other type of professional preparation we should be offering our students to face the immense challenges of the future. The majority (85% to 90%) of our students would follow such a course, which should probably be offered in the form of a Bachelor of Physical Education or a Bachelor of Education Degree (Table III). It should be a four-year qualification with an educational orientation which will equip the physical education graduate to communicate with other graduates as he works in the field.

This course, however, must still approach the subject areas from an academic viewpoint, and the *how* and *why* of human physical performance must be taught, not just the facts; to teach skills in the traditional sense is probably the best way to have oneself ostracized in the British Commonwealth university. After spending a short period of time in an Australian university, the writer agrees with the majority of his colleagues that the skill-oriented course is not university level work. However, if one teaches all skill work with a theoretical kinesiological and mechanical analysis base to it, then it becomes no less a worthy pursuit in a university than physics, chemistry or biology laboratories.

The other major criticism from university academics in the past is that physical education courses have not required the basic prerequisites on which the applied discipline of physical education must be built. There is no doubt that one must have at least basic animal biology, chemistry, some physics and human physiology before one can study exercise physiology. Similarly, one cannot study the sociology of physical recreation adequately without a basic background in general psychology, social psychology, anthropology and sociology.

It is important that this course should have enough flexibility to train teachers for the State and private schools as well as physical educators to work in the community. We have not yet made very much of an attempt to place physical education specialists outside the schools in Australia but there is a definite place for them in the following areas: the armed services, hospitals (in cardiovascular and physical rehabilitation), mental institutions, gaols, child welfare departments, industry (industrial fitness), health clubs (cardiovascular reconditioning), national fitness councils, community health recreation, advanced colleges of education and universities. Physical education specialists work in such places in parts of Europe and North America and are considered to be an integral part of the overall preventive and rehabilitative medical programme.

It is necessary to stress the fact that we must give our physical educationists a high level of training, first and perhaps most important, so that they can do a competent job as educators and social service workers in the schools and the community; second, so that they can communicate with professional graduates in other allied fields, and third, so that some of them can conduct research into many of the medical problems facing man today. Too long have we played second fiddle to many other professions, mainly because we felt inadequately trained when we compared ourselves to them.

To *conclude* this topic, it is necessary to stress that the time is *now* ripe for us to develop a highly respected profession. This is vitally necessary for the physical well-being of man, as he enters the computerized and technological age of the future. Because our profession is so valuable in such areas as preventive and rehabilitative medicine, we must *insist* that our future physical educationists be given equal opportunities for sound academic and professional preparation in the Australian university with all the other basic and applied disciplines. We have a right and an obligation to tactfully demand this, as the writer is certain that our case

is a valid one. If we present it insistently and with conviction, we should have little problem in gaining full acceptance in the Australian university in the very near future.

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Teacher Education for Physical Education in New Zealand

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THERE are two aspects of teacher training concerned with physical education in New Zealand that should be examined. Firstly, there is the professional training of specialist teachers of physical education. This is provided for at the university level. Secondly, there is the training of general teachers for primary teaching and of secondary school teachers with specialization in other fields who are required to have a useful background of knowledge and skills relating to physical education requirements in the school curriculum. These are provided for at the teacher college level.

There is only one source of university specialist training but all teacher colleges provide varied and possibly increasing degrees of specialization and curriculum study. The Education Department also plays some part in teacher training in physical education. In a limited but significant way, so does the New Zealand Association of Health, Physical Education and Recreation. The present situation, therefore, is rather a complex one that is largely the product of evolution.

Each of the agencies concerned with teacher training in physical education can now be looked at in turn. The present form owes much to their past as do some of the problems that still beset the profession generally.

1. The Education Department

The National Adviser of Physical Education advises the Minister of Education on physical education matters and administers the Physical Education Branch of the Education Department. This comprises assistant staff and area advisers.

In-service training courses conducted by area advisers in physical education are set up locally and courses are usually of about two days' duration with about 20 attending. One of the objectives of such courses

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is to train what are known as resource teachers who will take information back to their schools and have some responsibility for organization and assistance to other teachers.

Recruitment to the advisory service is now made from teachers trained on what is known as a fellowship course which is conducted at Palmerston North Teachers' College.

2. Teacher College Courses in Physical Education for Primary Teachers

Teacher training in physical education is provided for in the teacher colleges for primary teachers (Division A courses) in several course structures to meet different requirements. Before outlining these, however, it should be pointed out that because of the large measure of autonomy in the colleges there is variation throughout the country in time allotment and course content though, basically, the aims and objectives are the same.

(*a*) *Syllabus Study*. This is the basic course for all students training as primary school teachers. Time allocation may range from as low as 20 hours at Dunedin for the three-year course to as much as 48 hours at Christchurch.

(*b*) *Selected Study Courses*. Students entering Teachers' College select a course of study from the eight subjects of the school curriculum in which they wish to acquire some degree of specialization. The study course may be for one, two or three years, according to ability or wish to participate in other selected study courses. Each level, therefore, is designed as a complete unit but is progressive through the three years. A year's study is divided into two semesters with assignments and examinations in theoretical and practical work.

Approximately one-quarter of the annual intake of students (385 at Christchurch) choose physical education as a selected study. About two-thirds of these continue with the study at the second year level. Only the best students (approximately 30) are permitted to study the unit at the third-year level. Those who wish may enter for the NZAHPER Associate examinations since they have already covered much of the syllabus requirements for this. About half the year three selected study group do this.

Students who have progressed through the three levels of selected study in physical education will have had 329 hours of class work apart from their own study and reading. This gives them a substantial qualification in their specialized field and will enable them to become the resource teachers in their schools.

3. Teacher College Courses in Physical Education for Secondary Teachers

There are two colleges for secondary teacher education—one at Auckland and one at Christchurch. The function of these colleges is to prepare university graduates (Division C students) for a teaching career by means of a one-year course of study. Most of these students were committed to teaching on entry to a university by accepting a substantial

bursary (called studentship) by which they are bonded to the Education Department for the number of years they accept the studentship.

The amount of physical education that can be accomplished with these students is often very small. Half of their year is taken up with periods of teaching practice in schools while many continue with additional university studies for which they have time off. The general aim is to provide an introduction to physical education activities in post-primary schools and some competence for those who may later wish to assist with teaching the subject or with games coaching. A minor course is conducted for one term for four hours a week. In this course, students choose three recreational activities and five extra-curricular sports. A major course is offered as preparation for teaching in Forms 1-6. This includes planning of schemes of work and lesson units and the development of teaching skills as well as gaining competence in recreation and sport.

An interesting experiment in teacher education is now being developed at the Christchurch College, embracing most subjects taught, including physical education. A sequential programme is outlined which calls for identification of a specific topic, its relationship to the field of study and an understanding of basic principles. The topic analysis leads to use of acquired knowledge, lesson planning and, finally, mastery of the topic. In the case of physical education, understanding and analysis of skills leads to teaching ability and the acquisition of sound background knowledge rather than mere ability to perform.

There are two special groups at the colleges for secondary teachers for whom special courses are provided

(*a*) *Division B Course Teachers.* These are university students who are based at either of the two colleges for three years during which time they are expected to have completed five degree units and the Associate examinations for NZAHPER to qualify for a diploma of teaching. There are certain difficulties with this course. Students on the course tend to be of lesser ability than other university students, since most are not aiming at a completed degree and only a very small number (about 20 in three years) are attracted. The Associate examination requires almost three years to complete and failures can hinder the outcome of the course. It is almost impossible to arrange for a timetable of study for physical education with students attending university lectures for different courses at different times.

Members of NZAHPER see an injustice in equating the Associate examinations to one degree unit but hesitate to claim that the examination on its own is sufficient qualification for a specialist secondary school teacher. The Division B trained teacher was intended to become an assistant teacher under heads of departments in schools to help overcome serious staff shortages throughout the country. Because these shortages are still acute (over 100 vacancies a year) it is likely that the Division B trained teacher will be accepted for specialist positions. Some physical educationists fear a lowering of professional standards.

(*b*) *Diploma of Physical Education Graduates.* There are this year about 20 of these graduates in each of the two colleges. Because they

have already studied physical education, however, a special course in this subject is arranged for them. Its purpose is mainly to complete those aspects of their training where it is thought there may be deficiencies. The administrators of the course complain about the broken time where students undertake further university study and about the lack of understanding by school principals. The students complain of an unfruitful year and misuse of the teaching practice periods in schools. They object to being treated as "slave labour" because of staff shortages in schools. There is obviously a need for improvement in this aspect of Division C teacher training involving diploma graduates of physical education.

4. The School of Physical Education

Notwithstanding the contributions of other institutions towards teacher training in physical education, the School of Physical Education at Otago University, Dunedin, is the only source of professional training in physical education in New Zealand leading to an academic qualification. The three-year diploma course has the same admission standards and students qualify for the same university bursaries as for other university courses. In a teaching position, the diploma carries the same qualification grading marks as for a first degree.

The minimum entrance qualification is university entrance with the exception that any person over 21 years of age may enter a university provisional on attaining the required standards at the end of a year. Only a few enter under this *ad eundum* provision. Ordinary university entrance bursaries provide free tuition to all students.

The course has now been operating for 22 years and there have been many changes to course structure, especially in the latter half of this time. Perhaps the most valuable change has been the opportunity since 1968 for students to study selected topics in depth by providing options for specialization over more than one year.

In the three-year course, use is made of several other university departments. The Departments of Biochemistry, Physiology, Anatomy and Education, as well as the School of Home Science and Dental School, all contribute to the course.

As yet no opportunities exist for post-graduate study. The necessity for graduates to go outside the country for this is in some ways an advantage since it produces a steady feed-back of fresh ideas from a great variety of sources.

Men students must attend the one-year (Division C) courses at either Auckland or Christchurch Colleges of Secondary Teaching to qualify as teachers. Women students may be exempted, though about half of them elect to attend while others may return later on full teaching salary. The teaching qualification appears to be necessary to ensure graduate status for graduate study overseas.

A degree course has been discussed and planned since the diploma course was established, but still not agreed upon, though hopefully anticipated within two or three years.

5. The New Zealand Association of Health, Physical Education and Recreation

Discussion of institutional courses has already revealed the widespread use of the NZAHPER Associate examination. Apart from the utilitarian reasons for sitting the examination, it is also used to advance professional status. Diploma graduates use the examination as an incentive to continue study and as an additional qualification. It can scarcely be considered as a post-graduate qualification though the standard is such that not all diploma graduates succeed in passing all subjects for which they enter.

The Associate examination is a prerequisite for advancement to the status of Fellow, for which an original thesis must be submitted. To date, only three people have advanced to Fellow, though the number of Associates is growing yearly. Candidates must be members of the NZAHPER.

The Associate course was originally intended as a home study course and is essentially still of that nature, though teacher colleges are increasingly basing instruction on the prescribed syllabus. Successful students are able to complete the examinations in just over two years except that diploma graduates are exempt from the first year's work (or Stage 1 subjects). After completing all the examination requirements, candidates are given an exacting practical examination in teaching skills.

Candidates are required to complete assignments during the year and are assisted with reading lists. The Association has now accepted responsibility for conducting refresher courses every two years. These occupy a full week and are orientated towards preparation for the Associate examinations.

6. Summary and Conclusions

Teacher training in and for physical education in New Zealand presents a complex picture. Some of the courses have grown out of earlier provisions for physical education. With this process of evolution we have made many satisfactory advances but have also inherited many problems. The source of many difficulties stems from the attitudes of administrators in education.

Teacher college courses, already extremely diverse in their function, are complicated by the autonomy of the colleges. No two colleges make the same provision in either time allotment or coverage of subject matter. There has been some experiment in course structure and some of this is encouraging. However, there is obviously a need for more collaboration, not only among the colleges themselves, but with the NZAHPER, whose main concern should be the preservation and raising of professional standards. There is a strong danger that the common use of the Associate examination for purposes other than the advancement of status, as was originally intended, may manœuvre the Association into the position where it becomes more an agent for institutional bodies than the professional body for qualified physical education teachers.

In spite of the complicated nature of teacher training in New Zealand and the seeming conflict of interests at times among the institutions concerned, there are reasons for viewing the future with some confidence. Perhaps the most hopeful sign is the growing sense of profession among physical education teachers. In developing this, the high academic standing of the School of Physical Education, the increasing quantity and quality of research within the country, the widely accepted institutional use of the NZAHPER Associate examinations and the infiltration of physical education teachers into teaching and administrative positions of responsibility, have all made contributions. This is a situation which can only grow and reflect beneficially on teacher education.

"The Challenge of Recreation"

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It is my task to offer you a challenge in the field of recreation. By going back and re-appraising the field of recreation as a whole, I will try to expose problems within the field of recreation and challenge you to see a purpose for action and new endeavours in recreation.

As a newcomer to the field of recreation, I find it difficult to gain a real structure or framework of reference in which to work. There seem to be many definitions and many confusing terms in the field of recreation. I find it difficult to differentiate between leisure, sport, athletics, fun, recreation and many other terms which seem at many times in speech and print to mean the same thing. There is a challenge to look for consistency of definitions within the field of recreation. There is a definite need for a common basis in looking at the field of recreation.

Leisure and recreation, for instance, have each been defined in various ways. I am forced to wonder whether leisure is something more than discretionary time or a time when a person is free to do what he chooses; I wonder if leisure is not merely a time block, "but a force, which is not only the germinating concept of art and culture, but a pause during which a participant gains glimpses of values and realities that he ordinarily misses in everyday life". I wonder whether leisure is the time a person spends free from his work, apart from that necessary for eating and sleeping.

Let us consider the term "recreation". Here are two definitions of recreation. First, recreation embodies those experiences or activities that people have to engage in during their leisure for the purpose of pleasure, satisfaction or education. Secondly, recreation is an enjoyable leisure experience in which the participant voluntarily engages and from which he receives immediate satisfaction.

To further confuse the term recreation, there is another term called "community recreation". Sometimes it appears as an aggregate of constructive, socially approved activities and services conducted and sponsored by tax supported voluntary and commercial agencies and groups of people within a defined communal area. Out of all this there must be some common basis for determining definitions and terms associated with

recreation. I challenge you as recreationists to provide a more coherent and co-ordinated structure for introducing people to the theory and description of recreation.

Someone said the urgent question of the 20th century in this booming age of leisure is not "What can I do?", but "Who can I be?" We need to look again at what recreation is doing and where it is going. Other challenges of the recreational scene can be drawn out and highlighted by looking at the historical setting and development of recreation.

In primitive cultures, work, recreation and survival were integrated. In modern civilization we have organized rather than integrated recreation. Hemming has suggested that when a large civilization replaces a simple one, creativity is limited because of impounded conformity.

The challenge is to elicit creativity from the individual and restore easy communication between individuals in a civilization that is trying to over-organize recreation at a local government, State and international level. It is the individual and his recreational needs that are important in recreation, not the organization.

The impact of modern technology on society has been to produce, we believe, a better standard of living, but it has also accentuated problems in the field of recreation.

It has resulted in a greater availability of time for leisure pursuits. How has modern technological society changed to accommodate for an increase in leisure time? This in itself challenges the recreationist to adapt programmes and facilities to meet the need of urban technological society.

Leisure involving games is conducive to an environment of equality that is not ordinarily found in work pursuits. This provides an important regenerative element, for in leisure play the individual "avenges himself upon reality, but in a positive and creative way". When leisure attains this active mode the relationships between individuals may be enhanced in a manner that modern work fails to provide. Leisure can thus express an educative function in that it gives incentives to perfection. Unfortunately, such motives all too often are corrupted by professionalism in which the quality of pure play is leached out in order to convert leisure and play into a form of business. Once this is done, the confrontation of work and leisure is eliminated and what was once leisure is enveloped by the same work attitudes that exist elsewhere in society. The activities, sports, movies, television—are not leisure even for the spectators who fill the stadiums simply to engage in an expenditure of time. Hero worship replaces the admiration of skill while violence dominates the activity itself.

Our challenge is to take recreation out of the purely commercial field so that people can be educated to use it well, and for their own well-being. We need to counteract the commercial picture of recreation put forward by the mass media and show people their need for recreation if they wish to live life to the full.

This brings us to look at the philosophical problems concerned with the challenge of recreation. If philosophy deals with aims, objectives, values, programmes and the appraisal of terms, I find little of value in

what I have heard or read in the field of recreation. There is little correlation between the aims and objectives stated by a recreational programme and the actual end result. There is a tendency to concentrate on the skills and forget the purpose behind teaching the skill.

The challenge is to prepare a coherent co-ordinated philosophy of recreation. When we plan a programme do we take into account any view of the "nature of man". Does our view allow man to be anything more than a body, something to be conditioned to perform a skill. Do we teach him something that involves his mind or his spirit. Whatever our view on the "nature of man" is, or whether it has all or none of the components mentioned above, it will determine what sort of programme we will eventually devise.

If culture depends on the transmission of values to the people within it, how can recreation develop or maintain a value pattern. I wonder whether recreation can have a stated value pattern. You can move from one recreational scene geographically to another and feel purposes and values to be different. Someone suggested that recreational programmes in some centres are little more than a substitute for the war urge. We need to resolve for ourselves the following types of questions. How do we inculcate the values in which we or the employing authorities believe, into a recreational programme? Do we ever consider the purpose or value of our work? Is it important in this age to look at value patterns if our society is changing so rapidly? Can recreation have a stabilizing influence or offer cultural benefit to our world as it moves ahead? Are any of the following aims suggested by Yukic important in community recreation?

1. To achieve a quality of leisure activity which sets a level for society and contributes ultimately toward improving American living and civilization.

2. To enrich community living through opportunities for satisfaction of man's need of fellowship.

3. To allow for individual self-realization in physical well-being, recognition, prestige, new adventures and emotional outlet.

4. To enhance human relationships through a process of improvement of social skills, group experiences; and by a refinement of habits, attitudes and appreciations.

5. To promote economic efficiency. Recreation may enable an individual by providing a physical or mental change from work to work more effectively.

How can we see individual recreational needs in the perspective of large group or community activities? What do you do when you look at the school situation and find that recreation is treated as a frill rather than a necessity? How can the individual be led to discover where their own specific recreational needs can be met? Where do you learn about life-long sports and activities if they are not introduced as part of the school curriculum?

Some of the aspects which seem to be brought out in programmes are competition, the desire for excellence, beautiful looking organization

patterns and skills. These factors are important, but too much emphasis on any one area tends to create problems.

Two other aspects associated with programme planning in our modern society need to be highlighted. The first one is concerned with the education of leaders and the second with research.

The greatest challenge to recreation at the moment is provision of qualified leadership. It amazes me to see the types of people that are running recreational programmes, helping or advising people in the field of recreation. A number of mistakes are being made because highly skilled professionals are not employing their enthusiastic but untrained assistants in the right way. Amidst a world lag in the provision of educated leadership, recreation can do nothing more than provide mediocre programmes. This situation will continue unless better use is made of the limited professional resources available and action is taken now to relieve the shortage by planning for the development of leadership potential.

Many people are trying to give dignity, status and professional values to recreation without showing evidence of research to support or substantiate their position. Recreation is a discipline in that it has a body of knowledge of its own, a set of skills to pass on, and an ever expanding area of research. Too much emphasis, however, has been placed on physiological aspects of sports and fitness and not enough on the mental, social, emotional and educational aspects of recreation. Many of the philosophical aspects are awaiting research. There is a demand within society, particularly from industrial groups to prove the worth and need and economic values of recreation in a society which is supposedly affluent.

Many people in recreation consider their vocation a second-rate one. They do not seem convinced of the value of their work, they sell themselves short rather than accept the fact that they are just as important, if not more important, than any other aspect of education for living in the world of today. We should not need to be convinced of the worth of our field of endeavour. We need to accept the fact that there are problems in the field of recreation yet we need to go beyond this point to accept the challenge to work for their solution.

We need to take responsibility and act so that recreation may become available and suitable for the needs of everyone.

Our greatest challenge is to help people to involve themselves in meaningful, worthwhile, creative recreation.

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"Blueprint for Tomorrow"

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THE subject "Blueprint for Tomorrow" places me in the role of seer and prophet. Presumptuous perhaps, but it would be presumptuous indeed if I did not make it clear that my observation will be confined to recreation in Australia as I see it in the future.

An adequate definition of recreation has so far escaped me. Lack of a concise statement may permit the outlining of some aspects of recreation upon which we may agree. Leisure is a pre-requisite of recreation—the more abundant the leisure the greater the opportunity for recreation. It flourishes to best advantage with security and freedom. Liberty to choose also needs aspiration, motivation and application. It can rise to great heights of achievement, bring satisfactions and joy in the effort. The pursuit of excellence will require the accrued knowledge of others, deep absorption and self-imposed discipline. It is also present in the happy laughter of play. It seems to flourish best in groups, but many individuals find full expression for latent talents without group contact. It pertains to all ages. Security, liberty and freedom being present, recreation may usher in education at its best—a truly æsthetic and social experience. May I, to help these assumptions, borrow from T. P. Nunn: "upon what basis does that historic claim to liberty rest if not upon truth, seen darkly by some, by others clearly envisaged, that freedom for each to conduct life's adventure in his own way and to make the best he can of it, is the one universal ideal sanctioned by nature and approved by reason; the beckoning gleams of other ideals are but broken lights to this." It seems to me that in recreation, some of Nunn's beckoning lights come shining through for Australia. May I go further—and again I borrow from Nunn, continuing his quote: "It offers the one sure foundation for a brotherhood of Nations. Dare we take a lower and can we find a higher ideal to be our inspiration and guide?"

The astrologist consults the stars, the weather profit his charts of temperatures, pressures, the cloud formations by satellite—so I must refer to the Australian economic and social climate which I find very propitious to recreation and about to cross our moving screen.

- We are on the threshold of great affluence.
- We have an abundance of new leisure.

- We enjoy a high standard of living, equally shared.
- Twelve million population offers equality of opportunity.
- A ferment of ideas, cultures, in progress with the influx of migrating peoples from many lands.
- A recency of civilized history, few inhibitions imposed by tradition.
- A nation which prides itself on its vigour, and with a love of sport a part of its culture.

There is a vacuum in regard to organized recreation outside of our considerable experience in sport. Conservation, pollution, are now matters of public conscience. National parks, public recreation space are well implanted with planners and advisers at all levels of government. There is a proliferation of clubs: grog clubs, sports clubs, service clubs, youth clubs, senior citizens' clubs. Recreation is happening at the local level which is as it should be, but in my view there should be more State and national involvement soon.

The ICHPER Congress may help to polarize these unrelated activities and lead to a clarification of our recreation guidelines. The APEA is our strongest ally in recreation associated action. We would hope that the Australian Recreation Association can knit together the many and varied organizations interested in this field. The Association aims to improve communication, provide services, gather resource material, technical information including facilities, and generally promote recreation in Australia. In my blueprint for the future I see associated and related action as basic to success. We would hope that we can bring our best minds and all accrued experience into this association—that there is a place for all interested groups and persons. Inasmuch as the field is so vast, we have created divisions which include professional training and employment; groups—local authorities, clubs; education—schools, colleges and universities; recreation therapy; conservation and parks; camps and camping; tourism, business and commerce.

The Association was constituted in 1967. It has, at present, one hundred members. We are in the process of a membership drive and the target in 1970 is 1,000.

Professional Training

There are a number of training courses operating in various areas including group work, youth workers, social service. The only Diploma of Recreation Course operates under the authority of the Minister for Education and Science at the National Fitness Centre, Narrabeen. The student enrolment is about 200. The first 10 diplomas have been granted and we expect this total to exceed 18 in 1970. Mr. Butt expressed my blueprint for the future excellently in our group session yesterday—a school for specific purposes as an autonomous college of advanced education, granting diplomas and, later, degrees in recreation and possibly physical education. We would hope to develop a three-year course, but we would continue the present four weeks' intensive courses termed "sandwich courses", to provide for training for those already employed.

Accreditation with colleges and universities granting degrees is being negotiated for specialization in fields requiring advanced training.

Staff and students from Sabah, Ceylon, Hong Kong, China, Japan, New Zealand, the United States, Canada and Thailand have participated in our recreation training. My blueprint: an international college with student and staff exchanges—a peace corps of recreation experts.

Groups

Local authorities, Departments of Education, National Fitness Councils, youth organizations, community centres—to mention some of the organized fields of recreation—constitute the major field of placement of trained recreation staff. In my blueprint for tomorrow, I would see the continuance of voluntary leadership with available training to suit their specific interests, but the emergence of full-time career employment with appropriate professional training. Melbourne, Sydney, Willoughby, Kuring-gai, Warringah, Tasmania, Queensland—to name only a few—have recreation officers, and organizations such as the YMCA have had employed staff for many years. I foresee, within a decade, over 1,000 such persons in full-time employment.

Education

Universities and colleges—almost without exception—conduct student recreation programmes consisting mainly of sports, but of recent date new recreation activities and improved facilities have made their appearance. The schools, particularly the secondary schools, have become increasingly aware of the need to prepare the students for a recreation experience in later community life and student club programmes are no longer rare. In my blueprint I see a related programme of health, physical education and recreation operating in and out of school time with an adequate trained staff. Further, I see no major difficulty in conducting recreation programmes for community groups using the school facilities—we have been doing this for some years with no major problems. If I had my way I would begin to plan the schools for this future school-community use as a major community recreation resource. I have always been disturbed at the hours wasted and economic loss during evenings, weekends and vacations when these costly facilities provided by the public are closed. The Department of Education, N.S.W., has a recreation staff employed in a variety of educational fields.

Recreation Therapy

The upsurge of interest in fitness has resulted, in part, from the alarming increase in cardiovascular disease. This has produced a public awareness of the importance of physical recreation. Jogging clubs have appeared almost spontaneously, recreation facilities proliferate in registered clubs and health studios are commonplace. Local authorities take pride in the recreation opportunities they have made available—community centres, pools, parks are well to the fore in town planning and new housing developments. This recreation mass therapy continues to expand.

The use of recreation as a method of therapy is well established in specific fields: psychiatric hospitals now have recreation officers; we have heard how sports medicine assists in fitness conditioning; the social misfits of child welfare and the prisons are assisted back into society through recreation; one of our speakers has mentioned programmes for the handicapped.

Conservation and Parks

Commonwealth and State Governments, in recent years, have made vast land provision for national parks. Since the War we have overcome many of the deficiencies in our parklands. Increased leisure and improved roads make the need of further park development apparent. We have park administrators, rangers, forestry and maintenance staff, fire protection, but, as yet, few recreation staff to bring to the public the full potential of these recreation areas. In my blueprint I can foresee a large field for employment and training of such staff.

Camps and Camping

Camping in permanent camps for the school age is well established in all States. In N.S.W. about one in every four school children experience school camping in National Fitness camps. We have not, as yet, embarked on family camping, although many youth organizations have established their own camps. Commercial camping is limited to snow areas and caravan parks, but planning is proceeding for recreation travel camps.

Tourism

The Director of Tourism yesterday indicated the billions of dollars being expended on travel at the present time. It has become the world's biggest business. In itself it is a form of recreation, but the relationship of travel with the popular recreations of the country has mutual benefits. My blueprint includes highly specialized recreation consultants, organizers, guides.

International Role of Recreation

May I return to my earlier quote: "It offers the one sure foundation for a brotherhood of nations." Dare we take a lower and can we find a higher ideal to be our recreation inspiration and guide?

The Development of Outdoor Pursuits Centres under the Control of Education Authorities

HERBERT W. P. WRIGHT

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SINCE World War II there has been a vast increase in the development of outdoor pursuits within what we now recognize as the field of physical education. Mountaineering, canoeing, sailing, underwater swimming, caving, camping and ski-ing, orienteering and pony trekking are the main pursuits from which the basic programmes of work in outdoor pursuits centres are selected.

Even before 1939 some education authorities had started camping in areas well away from their own localities. Initially, most of these authorities used their camps to provide cheap forms of holidays for children who, at that time, lacked opportunities in their homes for going on holiday. In my authority, which is part of a highly industrialized region, this was certainly true, but gradually the camps were used increasingly as situations for teaching the basic skills of camp crafts needed for life in any large standing camp. Schools arranged programmes to meet their own needs and, although there was an emphasis on the study of the locality from historical, geographical and nature study points of view, some light-weight expedition work from the base camp was begun. Since the authority's camp was in a mountainous area—this was fortuitous rather than planned—it was imperative that the teachers taking children to camp should have courses not only in camp craft but also in mountaineering. This was the least that could be done to ensure that the safety regulations normally imposed in the 1950/51 period were understood and that the courses in mountaineering were sponsored by the Education Authority. Annual mountaineering courses were organized by my authority for seven years prior to the purchase of a building in the Snowdonia National Park in 1958.

Before this date only one local Education Authority outdoor pursuit centre had been established in Britain. In a survey of centres published

earlier this year by my professional Association, the BAOLPE, it is shown that there are now 36 outdoor pursuits centres in existence in Great Britain, of which 19 are run by education authorities. Although I am sure that you will readily appreciate the worth of this work, I would like to underline what I consider to be the chief values.

1. Living together in any residential centre is in itself of great educational value. This opportunity is usually not available for most children. In an outdoor pursuit centre children live and work with a partner or with a small group and the responsibility for organization is very much on them.

2. Such centres provide an enlargement of opportunity which can be of value to an individual when a choice of leisure activity is made. Children receive *encouragement* to carry on with outdoor pursuits and are given information on how they are able to do so when they leave school.

3. The children get the opportunity to learn sound, safe methods from members of staff who are enthusiastic and highly qualified.

4. We all realize that our modern environment shelters us from many hardships. It is my belief that, providing the best equipment is available, and proper safety precautions are taken, children should experience some hardships, for example, drenching rain, intense cold, intense heat (a little difficult in the United Kingdom), inky darkness, solitude and (the fast disappearing) silence.

Children should be aware that there are long horizons of the importance of attributes such as punctuality, of skills like accuracy with map and compass, and what I call "retrospective enjoyment". The key note is that the activity should be satisfying whatever the difficulties to be faced in doing it.

What of the future? There is a gradual tendency to move away from regarding mountains, lakes and rivers as useful only for physical education. Field studies are playing a greater part in the curriculum of outdoor centres and there is a greater emphasis on the study of the environment. It is now recognized that there are various planes or levels of adventure. Although physical conquests often still provide the greatest challenges there should be opportunities to use a camera, to study the rocks, the living things around us and the history of the area in which centres are located.

There has also been a move towards a more intensive study of safety factors. Centres have been in the forefront of experimentation and their work has influenced the attitudes now taken by responsible national organizations whose example is emulated in turn by all those who consider themselves to be devotees of outdoor pursuits. There will undoubtedly be continued expansion of facilities for outdoor pursuits which will maintain the high standards set by those already working.

Someone once said: "Only when people are in extremity, and realize that they are so, are they likely to act on fundamental advice for their salvation." Local Education Authority centres in the United Kingdom are playing a great part in helping people to realize that this is the wrong emphasis for outdoor pursuits in an educational context.

Recent Developments of Outdoor Education and Outing Activities in Japan

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1. Definition of Terms

I HAD an opportunity to make a report on the worldwide survey on outdoor education at the 11th ICHPER Conference, Dublin, Ireland, in 1968. On this survey I found so many terms related to outdoor education were used in each country: besides a term of outdoor education, such terms as outing activity or outdoor activity, outdoor pursuit, school camping, adventure training and education in the fresh air, etc. In my country, a term of outing activities is more popular than outdoor education.

In my country, this outing activity is defined as follows: "Outing activities are those which are carried out in natural environment to appreciate, understand and love nature; such activities as hiking, cycling, camping, orienteering, mountain climbing, fishing, boating, canoeing, yachting, ski-ing and ice skating are included."

The following objectives will be achieved through these activities.

(1) To master basic skills related to these outing activities and to improve physical fitness and to foster attitudes towards healthful and safe living through participating in these activities.

(2) To promote profound understanding of nature, to understand the importance of conserving nature and to make every effort toward conserving our natural environment.

(3) To foster social characteristics such as cooperation, leadership, obedience, initiative and self-control, etc., through participation in outing activities.

The Japanese meaning of outing activities is closely related to physical activities which are practised in the natural setting. However, when we go camping we include many types of activities such as cooking, arts and crafts, singing, sketching, poem writing, reading, as well as various types of games and sports, so it is not appropriate that outing activity should

include physical activity only. Outing activities include various kinds of pursuits which are carried out in a natural setting as well as physical activities in the natural environment: it is an inclusive term.

On the other hand, outdoor education is a rather new concept in the field of education in Japan. In a broad sense it is defined "to utilize outdoors for education" or "a means of curriculum enrichment through experiences in and for the outdoors". It is not a subject, but it is a method of education utilizing outdoors or natural environment for achieving educational goals. It relates every subject in the school programme.

In this sense, outing activities are subject matter in outdoor education; in other words, outdoor education can utilize various activities as its content. The relationship between outdoor education and outing activities is the same as the relationship between physical education and sports. As you know, various kinds of sports are the subject matter of physical education.

2. Brief Historical Development of Outdoor Education in Japan

Of course, camping has been held before World War II by YMCA, YWCA, Boy Scouts, Girl Scouts and other youth organizations; however, remarkable development has been made after World War II through Government support as well as efforts by the schools and various voluntary organizations. The first guide book on camping for youth was published in 1953 by the Ministry of Education. It was the first book which was published by the Government Office suggesting guidelines for organized camping for youth, and in 1955, the Ministry of Education began subsidizing the local board of education for the promotion of organized camping in every prefecture. The books "Guide for Educational Camp" and "Safety Procedure of Outing Activities" were published by the Ministry of Education in 1956.

In the enactment of the Sport Promotion Law in 1961, outing activities as well as sports are further emphasized by the Government. The following article is included in the law.

"In order to popularize and encourage such outdoor activities as hiking, cycling, camping and other activities performed for sound development of mind and body, the State and local public agencies shall endeavour to take necessary steps, such as constructing trails and establishing camp sites." Since then, further development of outing activities has been made and the Government has started new steps for giving subsidies of 20 million yen for the construction of outdoor education centres by the local Board of Education. For example, Shizuoka Prefectural Outdoor Education Center, located at the foot of Mt. Fuji, was the first one.

3. Recent Trends

(1) *Programme*

Through these efforts, the number of schools which prepare outdoor education programmes is increasing every year. Most of these programmes are not sufficient from the viewpoint of overall outdoor education objec-

tives, however, the content of the programmes is improving every year. I would like to share a few examples with you:

(a) *High School Programme in Nagana Prefecture.*—It has been held for several years, however, it was not a required programme for all students. To ensure participation of all students and to make the programme more meaningful, new policy is established as follows:

10th Grade Experience of Outdoor Living.
11th Grade Experience of Outdoor Living.
12th Grade Mountain Climbing.

Main activities which are offered in this outdoor living are as follows:

Lecture by the school principal;

Activities: outdoor cooking, games and sports, singing, sketch, arts and crafts, hiking and camp fire.

These programmes were planned and carried out by the cooperative effort of the physical education teacher, music teacher and arts and crafts teacher as well as home-room teacher. The following observations or comments were pointed out:

1. Aims and objectives of this programme were defined more clearly than before and meaningful experiences were provided compared with the former programme which was conducted on the free choice basis.

2. Further understanding among the students and between teacher and students was achieved.

3. Delightful outdoor living experiences were developed by the cooperative effort of teacher and students.

4. Various types of activities were presented.

5. Outdoor living experiences were a great experience in the natural environment and further understanding of nature was achieved.

Students paid 2,150 yen for three days' outdoor living experiences.

4. Leadership Training Camp in a Junior High School in Aomori Prefecture

In Yokohama town, Aomori Prefecture, northern part of Japan, a junior leader training camp is sponsored by the local Board of Education. There are two junior high schools and four elementary schools in this town. This leader training camp is carried on a free choice basis, however, from 4th-grade children to 8th-grade children all participate in this camp.

The objectives of this camp are as follows:

1. To foster leadership ability among the children.

2. To learn and understand individual roles and responsibilities through group living in the outdoors.

3. To have a new and creative experience in the natural environment.

4. To appreciate and understand nature and the importance of conserving nature.

5. To develop sound mind and healthy body through participating in outdoor living.

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This junior leader training camp is carried on in the primitive camp site which has a small stream. It is located four kilometres from the town, and is easy to reach. Contents of the programme are as follows:

Lecture: Why do we go to camp? How to find a camp site and set up tent. Camp food and Way of Cooking.

Activities: Group singing, folk dancing, hiking to the Eboshi Mt. (508 m.), camp crafts and outdoor cooking, low organized sports and games, nature study, social studies and camp fire.

Though the camp is only for two nights and three days, children get new and exciting experiences with trained leaders in the primitive type of outdoor living.

Besides the school-planned programme, several outdoor education centres which are established by the prefectural Board of Education are now providing basic or common programmes and facilitating utilization of these facilities for the schools. For example, Nara Prefectural Outing Activities Centre, which was established in 1969, prepares a guide book for school teachers. This guide book explains how to utilize this centre for a meaningful outdoor education programme. Contents are as follows:

1. Preliminary planning.
2. Geographical and historical explanation in and around the centre.
3. How to utilize this centre:
   basic daily procedure,
   morning assembly and evening assembly,
   dining rooms, toilets, lodging facilities, etc.,
   safety and service activities.
4. Camping activity.
5. Outing activity.
6. Other outdoor education programmes.
7. Indoor facilities for outdoor education.
8. First aid and safety procedures.
9. Others.

Though each school which wants to use this centre may develop its own outdoor education programme, this guide book makes it easier to plan the programme.

(2) *Leadership Training*

As I mentioned at the 11th ICHPER Congress, Vancouver, 1967, there is still only one university which offers an outdoor education course for major students—that is the Department of Outing Activity, School of Health and Physical Education, Tokyo University of Education. However, the number of universities which require an outing activities course for physical education major students is increasing.

At the same time, in-service training courses for outdoor education are more emphasized by the Ministry of Education. For example, the Sports Section, Bureau of Physical Education, Ministry of Education,

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sponsors a short training course for outdoor education for five days every year. Contents of this short training course are as follows:

Lecture: Aims and objectives of outdoor education;
How to plan and develop the programme in relation to the school programme;
Health and safety in outdoor living;
Nature study and conservation.

Activities: Hiking, camping, orienteering, outdoor cooking, singing and camp fire, etc.

About 250 teachers and youth leaders participated in this course which was held at the Asagiri Highland Outdoor Education Center, Shizuoka Prefecture and divided into three groups such as camping, cycling and hosteling in this year.

Moreover, every prefectural board of education sponsors a short training course for outdoor education for three days utilizing participants of the central short training course which was mentioned before as leaders, with cooperation of officials of the local Board of Education.

(3) *Facilities*

According to the recent survey on the sports and physical education facilities in 1969 by the Ministry of Education, the number of camping sites is 1,275. This is an increase of about 100 since 1965.

Number of Camp Sites in 1969

Established by the public agencies	624
semi-public	154
commercial	351
others	128
Total	1,257

Great developments have been made in establishing comprehensive outdoor education centres in several prefectures and big cities. I have already mentioned the Osaka Prefectural Outdoor Education Centre and Hyogo Prefectural Outdoor Education Centre. After this, a new outdoor education centre was established in Nagasaki Prefecture, Nara Prefecture and Shizuoka Prefecture. These centres have a camping ground, sports field as well as a main administration building which has an office, dining room, meeting room, assembly hall, lodging facilities with accommodation for about 200. However, there are such great demands for these types of facilities in each prefecture that every school cannot use these facilities and they can stay only two nights and three days.

For encouraging the establishment of these types of outdoor education centres, the Ministry of Education gives subsidies every year. Although the amount is not sufficient, it does stimulate further development of outdoor education throughout the country and each prefecture is now trying to provide well planned and equipped outdoor education centres with trained leaders.

5. Conclusion

As I mentioned before, outdoor education is a rather new field, so there are many things to do and we are facing various problems. However, I personally feel it is very important to promote outdoor education in the age of industrialization, urbanization and the age of public nuisance and hazards. It is the time to conserve nature and utilize nature effectively for human beings. Specialization is going on in the field of science, even in the field of physical education. It is a natural phenomenon. However, generalization is also necessary in the field of education. Outdoor education is a method of education trying to approach the human beings as a whole based on the scientific facts.

I feel very happy that I could exchange ideas, information and resource materials concerning outdoor education on this great occasion of the ICHPER Congress.

"Providing Innovation Experiences Through Evaluation of Individual and Group Progress"

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My portion of today's programme is concerned with developments in the area of evaluation in the United States.

It is generally recognized by health and physical educators in the United States today that evaluation is an essential part of good programme development. They know that if they are to achieve the objectives that have been set forth by their profession that they must be skilled in the use of a variety of instruments, techniques and methods of evaluation. The responsible educator, therefore, finds himself engaged in a continuous process of evaluation, utilizing the tools of measurement for many reasons.

In addition to the traditional use of measurement for grading purposes, usually by determining progress, we are also commonly using it for such vital purposes as (1) determining the needs of individuals and of groups, (2) classification of individuals, (3) assisting in the determination of strengths and weaknesses in materials, methods and teaching procedures, (4) motivation of students, and (5) evaluation of the outcomes of physical education in the light of our stated objectives.

I might interject at this point that the objectives of physical education in the United States are commonly considered to be: (1) Development of physical fitness and organic efficiency, (2) Neuromuscular or skill development, (3) Interpretive development (including knowledges and understanding), and (4) Social and emotional development.

Instruments have been developed which attempt to measure outcomes for each of these areas. It is not possible in our time allotment this afternoon to even begin to discuss all of these devices. There are, however, several good texts and bibliographies available in the United States which interested persons may consult for listings and descriptions of evaluation instruments in health and physical education. In addition, the American Association for Health, Physical Education and Recreation attempts to make its members and all interested persons aware of developments in this

field through publications such as this one listing *Evaluation Instruments in Health Education* and through annual listings of completed research in health, physical education and recreation. Physical educators have also sometimes found instruments developed by other disciplines such as psychology and sociology to be useful in measuring certain outcomes. It is the responsibility of the prospective evaluator to be certain that the technique which he employs is that which is most suitable for the intended purpose.

With this in mind, I would like to share a few recent developments in measurement and evaluation in the United States. In the 1950's, educators in the United States became quite concerned over the results of the Kraus-Weber tests which seemed to indicate a lack of physical fitness on the part of American children when compared with European children. As a result, President Eisenhower established the President's Council on Youth Fitness, and in 1958 the AAHPER youth fitness test was developed with national norms for boys and girls in grades 5-12. This test was revised in 1965 and new national norms were established at this time. It is of special interest because it represents the first attempt by the physical education profession in the United States to establish national norms. The AAHPER youth fitness test receives wide publicity through the various news media, and it is possibly used more than any other test battery by physical educators in our country.

The special committee who selected the test items was guided by the following criteria: the tests should be reasonably familiar; the tests should require little or no equipment; the tests could be administered to the entire age range of grades 5-12; the tests should measure different components of fitness; and, with the exception of pull-ups, the tests could be given to both boys and girls. The items which comprise this test battery include: pull-ups (for boys), flexed-arm hang (for girls), sit-ups, shuttle-run, standing broad jump, fifty-yard dash, softball throw for distance, and the 600-yard run-walk. Since this battery includes abilities which underlie motor performance, but are not essential for basic physical fitness, it might be classified as a measure of motor fitness.

Many good sport skills tests have been developed in the United States; however, there has appeared to be a need for nationally standardized tests to remedy what some persons have regarded as a weakness in the field of physical education. Accordingly, in 1959, the American Association for Health, Physical Education and Recreation initiated an ambitious project to develop standards for all of the sport activities which are included in programmes of physical education. The AAHPER Research Council decided to first establish tests and norms for 15 of the sports most frequently found in school physical education programmes. Following careful research and preparation, the skills test manual for the first activity was published in 1965. Since that time. work on six more batteries of tests has been completed and the appropriate test manuals published. These include American football, basketball for boys, basketball for girls, softball for boys, softball for girls, archery and volleyball.

It is of interest to note briefly the criteria which are being applied in the development of these test batteries. First, in relation to validity, the

tests are designed to be as nearly identical to the skills being measured as possible. They are intended to measure performance level rather than to predict potential ability for the specific sport. Preference is given to a test which is a method of practising the skill. In this way the student can practise a skill and be tested on it at the same time. Instructions for administering the test must be clear, and it should have no unusual requirements as to equipment, space, time, money or leadership. Other criteria relate to reliability, variability, scoring and the control of extraneous influences.

Thus far, more than a million scores have been used in establishing the percentile tables. It is the plan of the Association to publish the appropriate skills test manual as the norms are completed for each particular sport. These manuals are being favourably received by the physical education profession, and it is felt that they will be a positive factor in improving teaching, in the greater motivation of students, and in more effective evaluation of skill performance.

Still another project of our national association has been a two-fold pioneer effort: (1) to define and set down the body of knowledge in physical education, and (2) to provide a basis for evaluation of knowledge and understandings in physical education through the construction of written standardized tests. This effort, known as the Physical Education Knowledge Test Project, has resulted in the preparation and publication during the past year of the manual on *Knowledge and Understandings in Physical Education.*

We should remember that one of the primary purposes of this book is to serve as the basis for instruction in preparation for written tests in physical education. The preparation of these AAHPER cooperative physical education tests has been placed in the hands of the widely respected Educational Testing Service of Princeton, New Jersey. It is planned that there will be two final forms for grades 4, 5, 6; two for grades 7, 8, 9; and two for grades 10, 11, 12. Plans are for the tests to consist of approximately 50 items, with each item having four multiple-choice options. The testing time is to be 35-40 minutes. Norming editions of the proposed tests have been given, and it is anticipated that these tests in final form will soon be available for use with standardized tests from other areas of the school curriculum.

Needless to say, the complexity and magnitude of developing instruments of this type has demanded contributions and cooperation from many, many dedicated members of our profession who believe in the importance of responsible evaluation.

Turning now from these significant national projects, there are a number of other areas which are receiving special attention from health and physical educators. As we all know, a field which is attracting much interest at the present time is that of perceptual-motor efficiency. Educators and researchers are in general agreement that a significant number of children have learning disabilities stemming from a variety of causes, but with one thing in common—this is a discrepancy between what would seem to be their educational capacity and their actual functional level, especially in regard to reading and language disorders.

In an attempt to help these individuals, some persons are attempting to use movement as a therapeutic agent for these exceptional children. In some instances claims have been made for certain structured movement programmes involving activities such as crawling and cross-patterning or other types of activities which are quite controversial. Several theories have emerged, however, which do seem to suggest that aiding the child in the development of better movement patterns may assist in remedying other educational deficiencies. *All theories, even though unconventional, should be explored.* We are fortunate that we have persons such as Mrs. Sheppard here in Australia who are doing just this.

At any rate, it is the belief of many physical educators that an attempt to improve the perceptual-motor capacities of children through certain movement experiences will play an important role in education in the future. Accordingly, some researchers in the United States have attempted to develop norms for performance levels to which an individual child's performance may be compared. An evaluation may thus be made of a child who is suspected of possessing various perceptual-motor problems, and his performance may be rated according to what normally might be expected as a child matures. Interested persons may wish to examine the norms and the *Six-Category Gross Motor Test* for this type evaluation which are presented by Bryant J. Cratty in his book, "Perceptual-Motor Behaviour and Educational Processes", as well as in the recent publication, "Perceptual-Motor Efficiency in Children" by Cratty and Sister Margaret Mary Martin.

Many researchers today operate under the maxim that "if it exists, it can be measured". It is obvious, however, that some qualities seem to lend themselves to more accurate measurement than do others. The physical educator will probably never be able to completely divorce himself from subjective evaluation. For example, in sports no objective test has been devised which measures all of the factors involved in actual competition. Our profession, however, has an obligation to continue the progress in evaluation which has been made in recent years. Much remains to be done. New instruments need to be devised and others up-dated. Problems resulting from increased overcrowding, mechanization and the tempo of modern living will need more research and improved methods of evaluation.

Last year ICHPER published the report entitled "Physical Education in the School Curriculum". This study provides an overview of the school physical education programmes provided for boys and girls in 81 countries around the world. If these programmes are to reach their full fruition, it is essential that appropriate evaluation methods be developed and used to determine the extent to which the programmes are fulfilling the stated objectives of the various countries.

The future for health, physical education and recreation is bright. It seems safe to predict, however, that their continued growth and effectiveness will be closely allied with the willingness of the professions to properly utilize and refine existing means of evaluation and to continue to scientifically develop others.

Micro Teaching—A Pilot Programme

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Introduction

The preparation of teacher trainees for the activity of teaching has been regarded by some as a pious hope rather than an achievable reality. The failure of psychological theory to provide adequate models of instruction has supported the disenchantment. As a result, recent studies of teaching have turned from models based on learning or thinking to teaching behaviour itself. Micro teaching is a training method which adopts this approach and extends it to a simple and direct application.

The purpose in this paper is to first present the concept of micro teaching, and then to describe and evaluate a programme which applies its basic principles to pre-service training in physical education.

The Micro Teaching Concept

Micro teaching is a technique which provides teachers with situations where complexities of the typical classroom are reduced. It aims through this simplification and through the provision of immediate information on performance to gradually induct the student teacher into the macro teaching situation.

Teaching is simplified by reducing class size, lesson duration and by narrowing the scope of the lesson. For example, a student teacher may instruct four or five pupils for about five minutes, concentrating on a specific skill or technique. Immediate information or "feedback" is provided from any of the following: supervisory comment, comment of fellow students, the student's own recollections or by a video-tape replay of the lessons. Following the feedback period, the student reteaches the lesson with a different set of pupils.

The rationale of micro teaching appears to rest on a particular concept of the nature of teaching, supported by the viewpoint held by Nathaniel

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Gage. To Gage "If everything a teacher does *qua* teaching is teaching, then teaching consists of many kinds of activity—".* Hence "Teaching" "can be analysed according to the kinds of activities in which a teacher is engaged".† It is their central assumption that the identification, isolation and development of a variety of individual skills considerably assists and accelerates the development of the beginning teacher's expertise in the whole class situation, for in this situation he can call on any of these skills when the occasion demands.

While the purpose of this paper is not to critically discuss the concept of micro teaching, some issue should be raised. Firstly, not everyone would see "teaching" as so simply divisible; some may well regard the end product behaviours of successful teaching as far too complex or, indeed, unknown, so that they cannot be specified. In such a view, the individual is expected to transfer his learnings from a variety of related areas to the performance of teaching behaviour. Secondly, emphasis is placed on directly observable behaviours. The analysis then is clearly descriptive and not psychological.

Finally, the establishment of a skill in isolation by no means guarantees the learner's capacity to elicit that skill in the complex situation. It would appear that two capacities need to be developed: the first is the skill itself, the second the capacity to make decisions as to when the skill will be applied. If we follow Smith's[6] contention that teaching behaviour is "reactive" and often extemporaneous this is surely a point which becomes critical.

The Pilot Programme of Graded Teaching Experiences

A pilot programme applying micro teaching principles to the physical education situation was carried out in the first months of 1970 at Sydney Teachers' College. The Sydney Teachers' College conducts a three-year course leading to the Diploma of Physical Education in which a pattern of student teaching is based on two or three block periods (of about one month each) in every year of the course.

In these periods, students take over whole classes and conduct lessons of the normal duration. The first-year students encounter this situation in the fourth month of their college career. Preparation for this practice period is provided through lectures on method, practical lectures on primary and infants' school programme content and observations of typical physical education lessons at the Haberfield Demonstration School.

For a number of reasons it was decided to construct, apply and evaluate a scheme through which students' exposure to the actual complex teaching situation would be less abrupt and potentially traumatic. The group chosen was the 1970 first-year group consisting of twenty females and seventeen males, the majority of whom had quite recently graduated from high school.

* Nathaniel Gage, "Theories of Teaching", Chapter XI of "Theories of Learning and Instruction", ed. E. R. Hilgard (Univ. of Chicago Press, 1964), p. 275.

† D. W. Allen and K. Ryan, "Micro Teaching" (Massachusetts: Addison-Wesley Publishing Co., 1969), p. 14.

The Aim of the Study and its Research Nature

The major aim of the study was to devise and apply a programme through which students would be provided with a structured sequence of graded teaching experiences culminating in the fully complex teaching situation.

Upon the implementation of the programme an attempt was made to discover which variables within it were significant and whether any relationship existed between them. It is therefore stressed that the study was by no means intended as experimental. Indeed, following Festinger and Katz[4] the research involved may best be described as a "field study" of the exploratory type.

The Programme

The programme had two main elements: the first was a micro teaching schedule using the conventional components of this technique but with modifications applicable to the physical education situation. The second element was the June practice teaching session in which the normal procedure was adjusted so that whole lessons were taught but to classes of variable size. The combination of these two elements represented the attempt to structure the student's initial exposure to teaching in a sequential and graded form.

The Micro Teaching Schedule

The construction of a micro teaching schedule consisting of a sequence of teaching units was the first task. Each unit was composed of a number of skills regarded as necessary for the beginning teacher of physical education.

A lecture based on the skills of each unit was presented to the students. As soon as possible after this, students planned and delivered a short lesson to pupils. In this lesson the selected skills were deliberately stressed. Immediately after the lesson, the student's performance was discussed, alternatives and improvements were suggested, and a second lesson followed. Usually the student then progressed to the next unit of the schedule set for the following week.

Components of the Schedule

The Identification, Selection and Sequencing of the Teaching Behaviours.—In this area, the literature on micro teaching was of some, but not significant, assistance. The physical education literature, however, was, although it appears that no really systematic attempt has yet been made to identify the full range of behaviours executed by physical education teachers. Guided by this literature and personal opinion, skills were arbitrarily identified and selected, a major criterion being their specific and observable nature. Terms such as: "creating a good teaching climate" or "control", were rejected in favour of those descriptive of specific acts such as "rewarding", "directing", "gaining attention".

The following skills were ultimately selected and placed into the sequence of micro teaching units:

Unit	*Teaching Behaviours and Skills*
I.	(*a*) Directing pupils (gaining and regaining attention-giving directions, obtaining responses).
	(*b*) Presenting activities—direct method—(part).
II.	(*a*) Explaining.
	(*b*) Presenting activities—direct method (whole).
III.	(*a*) Developing desired—reducing undesired behaviours (reinforcement).
	(*b*) Presenting activities—indirect method.
IV.	(*a*) Moving and organizing the class.
	(*b*) Providing participation—class activity pattern.
V.	(*a*) Moving and organizing the class.
	(*b*) Providing participation—group activity pattern.
VI.	Promoting group participation.
VII.	(*a*) Individualizing teaching.
	(*b*) Promoting learning—analysing, diagnosing and directing.

Not all of these units were actually implemented; Unit VI was eliminated, as was VII (*a*).

One particular point became increasingly apparent as the schedule progressed. This was the distinction made between "predesigned" and extemporaneous or reactive teaching behaviour. Early in the schedule it was obvious that while students were generally applying pre-designed skills successfully, many, even in the small group situation, were not "sensitive" to the variety of responses within their class. Artificiality was observed in the application of "reactive" skills. For example, the rewarding behaviour of most students lacked discrimination, direction and variety. Accordingly, an additional behaviour or skill labelled "teacher sensitivity" was identified and emphasis was placed on students' capacity to observe and to selectively react to the specific class situation.

Presentation of the Skills.—A variety of methods was used to present the teaching skills to the students. These included the pure lecture situation, the use of 35 mm. slides to demonstrate some aspects of the teaching skills and the use of models (both live and video taped). In the latter forms, a variety of methods also was applied, a major distinction being the amount of information given to students about the skill prior to the model's demonstration of it.

The Micro Lessons.—Following the presentation of information about the skills of the unit, students were allotted a teaching time. They then prepared lessons in which these skills would be stressed; the choice of activities was made from a range set by the supervisor. A standard preparation pattern was adopted, and students submitted their preparation prior to the lesson.

The organization of the teaching period allowed three teams of students to operate at once. Each team usually consisted of three students

each of whom taught their pupils for a short period. When the last student completed his segment, the pupils returned to their classroom and discussion on the performance took place. At the completion of the five-minute discussion period, new groups of pupils arrived and the cycle was repeated. Class size ranged from four to six pupils (Units I, II, III and VII) to 12 to 15 pupils (Units IV and V) while lesson duration rarely exceeded six minutes.

Feedback.—Discussion was based on several approaches. The original incidental comment was replaced by check lists and rating forms. When the video-tape recorder was available, some of the lesson was replayed. An aspect of the discussion was the emphasis placed on the contribution of the students. By the use of these methods it was possible to provide feedback to all students during the critique period. This was a significant feature for pressure of time denied supervisory comment to every student at every session.

The effect of the emphasis on mutual and self analysis is reflected in the answers to two items of the questionnaires. While students generally preferred supervisory feedback they also rated "student feedback" next in preference. Secondly, five out of eight supervisors of the June practice session agreed that these students showed greater capacity for mutual assistance than students encountered in the past, the remaining three lecturers were undecided.

The June Practice Teaching Period

In previous June practice periods, first-year physical education students were first attached to infants and primary schools where they were required to present from 12 to 16 lessons per week to normal classes. In 1970, a decision was made to continue these procedures but to apply the principle of "graded exposure". The dimension chosen was class size. Accordingly, students were required to teach full lessons (of 20 to 30 minutes' duration) to groups which shifted from one-quarter to one-half and, finally, to full class size.

The four-week period was divided so that students taught quarter classes in the first week, half classes in the second and full classes in the final two weeks.

The usual practice, where members of the college physical education staff assume supervisory roles was retained. Eight members of the staff were involved with the supervision of the group under study.

Evaluation of the Programme

The method used to obtain much of the data was the questionnaire, four of which were constructed. Two were administered to the 1970 micro-trained group, a third was administered to the current second-year group, i.e., the 1969 first years who had been prepared by conventional methods. These questionnaires elicited students' attitudes and opinions towards three areas (*a*) the preparation for their first practice teaching session, (*b*) teaching, and (*c*) micro teaching.

The fourth questionnaire was answered by the eight members of the physical education staff who had supervised the first-year group during the practice teaching session. A group of items solicited supervisors' opinions about both performance and affective components of students' behaviour, as compared to previous first-year students. The second section elicited supervisors' attitudes and opinions of the micro-teaching programme as a method of professional preparation.

A final source of information was the practice teaching rating of students by their supervisors. This is a regular feature of all practice teaching and provided a basis of comparison with earlier first-year groups prepared in the conventional manner. Ratings are usually finalized in the last week of the practice period.

Findings

Student Teaching Effectiveness.—Comparison of supervisors' practice teaching ratings of the 1970 group with those of previous years indicates that the distribution of ratings for the 1970 group is quite different from previous years. The concentration of 1970 ratings into the "satisfactory" category and their absence in the "outstanding", "borderline" and "unsatisfactory" divisions are distinctive.

The amount of deviation from the pattern of previous years does suggest the existence of a relationship between the homogeneous, but generally lower, ratings of the 1970 students and the programme of teaching experiences undertaken by them prior to the final week of the practice period.

The pattern of previous years resembles a normal distribution. It is probable, however, that this is artificial. It may be that supervisors, by common agreement, have constructed standards on particular criteria of teaching which allow this pattern to develop. The ratings of the 1970 students are therefore "bunched" together not on an absolute scale of teaching effectiveness, but on one based on criteria and standards which have evolved from a different type of practice teaching experience.

A marked contrast to the trend of supervisors' general ratings was revealed in their impressions of the 1970 students on micro criteria of teaching effectiveness. Supervisors' replies to an open-ended item eliciting perceived difference between 1970 students and previous first-year students revealed that the most common attribute identified was the greater concern and capacity for actual teaching by 1970 students. Typical comments were—"showed a grasp of the teaching process as opposed to setting pupils to work" . . . "their main consideration was teaching".

It appears that most supervisors perceived their micro trained students as superior in those behaviours related to the specific process of instruction.

Supervisors' replies to a further open-ended question suggest that the major errors in 1970 students arose in the large class situation. The most common errors reported were the failure to transfer "teacher sensitivity" from half class to the full class situation and the inability to "organize" and "control" the larger numbers. All supervisors saw the

transition from half to full classes, in the third week, as the critical stage. Five of the eight supervisors reported their students as failing to make this adjustment in the short period of two weeks. Finally, all supervisors agreed on two additional points: firstly, that ratings of student performance on half classes only would have been distinctly higher than on full classes, and, secondly, that changing class size clearly appeared to be a contributing factor to the unusual distribution of student ratings.

A point may be made that previous first-year students if "tested" in the half-class situation may also have manifested these "different" behaviours. This is, of course, possible but supervisor opinion agreed that the 1970 students came to the practice teaching period with these behaviours already partially established. Secondly, while "instructive" behaviours were most clearly perceived in the half-class lessons, supervisors reported students' intention and awareness of these in the full class situation. On this *vis-à-vis* comparison the distinction was supported.

It appears, then, that supervisors perceived the 1970 students as superior in the area of "teaching" (particularly with the classes up to half size) but as inferior in large class situations dominated by the demand on "organizational" and "control" elements.

A possible explanation of the situation which occurred may be made in terms of "inhibition". It may be that students' awareness and desire to carry out specific teaching skills of the type developed in the small class lessons established "sets" which inhibited their capacity to either modify existing or to elicit new behaviours in order to meet the different situation. This notion is supported by supervisory report. Students apparently retained behaviours characteristic to small group teaching. As an example of negative transfer, this would explain the "bunched" distribution, particularly the depression of ratings normally to be found in the upper categories.

The supervisory comment that the "step" from half to full classes was too large suggests an alternative. It is probable that the stages of the programme were too rushed, or the increments too large. Thus, while the general pattern of progressions may be effective, more time or smaller increments are needed in order for students to acquire that state of "readiness" necessary for progression.

Student Attitudes.—It was quite evident during the micro-teaching schedule that most students were highly motivated and interested in their teaching experiences. This suggested that an examination of those affective variables relevant to teacher personality would be pertinent. Accordingly, supervisor ratings and students' self-ratings of attitudes and interests towards teaching were obtained at the end of the programme.

Supervisors' opinions of the motivation and confidence of their students during the practice session were revealed by their responses to two opinion statements in the questionnaire. Self rating by 1970 and 1969 first-year students of feelings and attitudes experienced in their first practice clearly shows a marked difference in the reported recalled attitudes and interests towards teaching, the more favourable being those of the

1970 group. The information provided suggests that a possible relationship may exist between earlier micro teaching experience and the attitudes held towards teaching immediately prior to, as well as during and after, the first practice teaching session.

The development and retention of appropriate attitudes and interests towards teaching are obviously major and critical contributions of the teacher preparation programme. Aspey[2] argues that when students feel confident about their capacity to "cope" with the immediate problems of everyday teaching they are more likely to go beyond a concern for "survival" skills to acquire the background necessary for full professional growth. Hence this finding may have a significant implication.

Micro Teaching and Professional Preparation.—Two questions were asked of both students and supervisors to assess their opinions in this area. The first related to the effectiveness of the programme as a practical method of preparation for teaching. The second asked opinions of its value in assisting students to discover and appreciate the theoretical foundations of their profession.

On the first question, every single respondent among both supervisors and students recommended the continuance of the programme for future first-year groups.

On the question of future application of micro teaching in their own training, 76% of the students agreed, 10% were undecided and 14% disagreed (N = 30). The major modification to future schedules desired by the students was a development towards the macro situation by extending lesson time and enlarging class size.

Supervisors, however, agreed on the value of using both small and large class situations in future programmes and saw no problems in the integration of both types into a single three-year programme.

When asked if the micro teaching experiences helped them to recognize the significance of theory courses to their teaching, 71% of the students agreed, 16% did not know, and 13% disagreed. Of the supervisors, 75% perceived a probable contribution of micro teaching to this function while 25% had no strong opinion.

It seems clear, then, that the opinion of the majority of supervisors and students is that micro teaching experience can contribute to the quality and impact of pre-service training in physical education.

Discussion

There are dangers in the unwary acceptance of any of the findings of this study. Nevertheless, relationships are suggested which future, more controlled research may investigate. The positive findings related to the suggested influence of the programme on the attitudes of students and the optimistic support by both students and supervisors to the micro-teaching concept provide more than adequate reasons for further exploration.

Findings related to criteria of teaching effectiveness are mixed and do not completely confirm those reported in the literature. In this pro-

gramme it appears that students did acquire and manifest important teaching behaviours. However, under the conditions available, they generally had difficulty in transferring their competence into the large class situation. The problem of a lack of transfer to the macro class has not been reported in studies based on classroom teaching. A number of explanations may be postulated, including cultural differences between Australian and American schools, teachers and pupils. A more fruitful explanation may centre on the distinction between the scope and types of teacher behaviours in the classroom and those in the physical education lesson.

It has been mentioned earlier that "organizational" behaviours constitute a significant segment of the physical education teacher's repertoire, whereas in the classroom these are minimal. "Instructive" behaviours may also differ. Smith, as noted previously, has emphasized the "reactive" nature of teaching, where the teacher's perception of the pupils behaviour is followed by a diagnosis and finally by a reaction based on these.

It is claimed that a clear distinction exists in this area of teaching between the classroom and physical education situation. In the latter, teachers are primarily concerned with perceiving and diagnosing responses which are overt and directly observable, i.e., motor performance. In the former, pupils' responses are mainly cognitive and covert. In the full class situation this distinction is magnified. It is extremely difficult for the classroom teacher to gain an immediate, total and accurate picture of his class's responses. As Smith states, "his perception of pupil behaviour is likely to be some sort of generalized picture, and his diagnosis a hunch".* Often classroom teachers guide their perception by seeking cues, asking probing questions, encouraging pupil talk, etc., but the nature of their situation where often only one child's response can be perceived at once, forces the teacher to "infer" from this sample the nature of the general situation.

This is not the case in the physical education lesson where every pupil's response is available in a very short period of time. The observing teacher is literally "bombarded" with information. The teacher's generalized picture is gained from observing a large number of specific cases and extracting the commonalities rather than inferring from one or two. This is no easy task; it may well be that in this situation the critical aspect is the teacher's ability to "deal with information"—to distinguish between the relevant and irrelevant and to selectively attend to limited aspects of performance.

It is argued that a distinction exists between the methods used by each type of teacher. It is suggested that the shift from small to large classes does not significantly alter the efficiency of the classroom teacher's "sampling method". The same condition requires the physical education teacher to "deal with" a much greater amount of information. This the novice cannot do and, as is commonly reported by supervisors, either makes very few corrections (reactions), or shifts to a situation where

* B. Othanel Smith, "A Concept of Teaching", *Teachers' College Record*, 61, p. 235.

the amount of information is within his capacity. He usually does this by concentrating on a small group of pupils, neglecting the rest of the class.

The not unintentional implication of "information processing theory" in this discussion reveals a personal opinion that models of instruction based on psychology may yet significantly contribute to future training programmes.

The immediate need, however, is to identify the most important behaviours executed by experienced physical education teachers. When the full range of behaviours are included in schedules, it may then be possible to determine whether the micro teaching technique can, in fact, make a significant immediate contribution to teaching effectiveness in physical education. That no such conclusion is warranted in the results of the programme reported has not dampened the enthusiasm of lecturers involved in it.

The basic notion of micro teaching is a principle long established in physical education: "learning by doing". Such an identification surely offers further stimulus and "promise" for the involvement of physical educators in this "new endeavour" in the teaching of teaching.

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An Interdisciplinary Approach to Curriculum Design in Health Education

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ACCORDING to Whitehead, "There is only one subject matter for education and that is Life in all its manifestations." Had Whitehead been writing specifically of health education, he could scarcely have given a more accurate summary of the health curriculum, viz., "Life in all its manifestations". Yet, because health does cover such a wide field of knowledge, the curriculum can too easily become merely a collection of fragments of information rather than a body of knowledge unified by a dynamic purpose.

As far back as 1869, Thomas Huxley opposed what he described as an "omnium gatherum of scraps of all sorts, and undigested and unconnected information". The health curriculum must, on the one hand, draw upon the fields of medical science, psychology, philosophy, sociology, history of medicine and other related areas. Yet it is required to present an appropriate balance of breadth and depth. Taba points out that "depth of understanding and a breadth of coverage are two contradictory principles. One cannot practise both to an extreme". She demonstrates, however, that the contradiction is significant only if one views subject matter as an accumulation of descriptive facts, and depth merely as an extension of coverage. If one takes "depth" to mean a clear understanding of certain basic concepts as well as their application, then it is possible to achieve a reasonable balance of breadth and depth by selecting a sufficient range of ideas for study which have the greatest applicability and the greatest power of transfer. For example, one could study the moral obligations in inter-personal relationships in sufficient depth without necessarily providing an extensive course in moral philosophy.

Health educationists are well aware that the mere acquisition of knowledge of health facts does not necessarily lead to value orientation and social perspective. B. R. Joyce's statement that "ultimately, science is a human study which has meaning only in terms of human values", may be applied most appropriately to the health sciences. The student of embryology needs to think through his own attitudes to abortion law

reform. The student of genetics must consider carefully the moral and ethical issues involved in genetic counselling and in arguments for and against euthanasia. It is in such areas as this, however, that one finds the health curriculum cutting across the seemingly clear-cut fields of medical science and moral philosophy. In a teachers' college where subjects are separated into departments, each confined to its own specific discipline, the problem of planning a health curriculum becomes apparent. At Sydney Teachers' College, an attempt has been made to draw upon the expertise of specialists in a number of disciplines while calling on certain of the medical staff to correlate and coordinate these studies into an integrated whole. This has been achieved most successfully with physical education students undertaking studies in health education during their third and fourth years at college. It has been found that although ten different college faculties have been involved in this health education programme, a considerable measure of unity has been achieved.

These ten departments are as follows:

Biology, contributing specialized studies in human genetics, bacteriology, immunology, entomology and parasitology;

Chemistry, which contributes a short course in biochemistry as it relates to health;

Physics, offering a special study of certain relevant aspects of biophysics;

Home Economics, which deals with the sociological as well as the scientific aspects of nutrition;

Education, which provides lecturers in sociology in relation to health science and social anthropology as well as certain aspects of mental health and counselling;

History, which covers the history of health practices;

Physical Education, whose staff has provided valuable assistance in teaching method.

In addition, the *Art* Department has advised students on the preparation and use of health posters and bulletin boards, and a member of the English staff who is also, by profession, a barrister-at-*law*, has given a series of lectures on family law during that part of the course which deals with family life education.

In our college, the Department of *Health Education* itself is at present composed solely of medical officers, and it has been our task to provide courses for these students in such specialized fields of medicine as human histology and pathology, human embryology and marriage and family life and also to coordinate the whole in general lectures and seminars which draw upon the subject matter of all the strands I have mentioned.

During the second year of the course, that is, in the students' final year at college, numerous visits are made to medical institutions such as child health centres, general hospitals, medical research institutes, clinics for drug users and alcoholics, psychiatric and geriatric hospitals, diagnostic centres for the mentally handicapped, acoustic laboratories and rehabilitation centres. The general pattern has been to follow each visit by two seminar sessions in which students attempted to evaluate the work of the

institution from the point of view of community health and to relate what they had seen to their theory lectures. These visits and seminars are conducted by medical staff as part of their role in the coordination of the course as a whole.

It is during these seminar sessions that health facts acquired during the students' college course are brought into clearer focus and that health concepts are crystallized. Dr. Oberteuffer and Dr. Beyrer point out that "merely to give information in class and to test for knowledge are not enough to assure action. Information received is only part of the story . . . surely group sanction or endorsement and group agreement to act are of great importance in affecting individual behaviour". We have found that group discussion assists students too, in handling such controversial issues as abortion law reform and contraception. One saw in students a development of respect and tolerance for those whose opinions differed from their own and one felt that following such discussion sessions, they would be much better equipped to handle such subjects in the classroom situation.

Towards the conclusion of the course, students were located for four weeks to certain specific community health projects. Some were involved in a research programme in the school of behavioural sciences at one of our universities. Others were attached to the State Department of Public Health's Division of Health Education and carried out basic research on such projects as the health problems of migrants. Others shared in a research programme relating to the evaluation of health courses in secondary schools in N.S.W. This experience replaced the students' usual period of practice teaching in schools at the conclusion of their course, and all of them found it to be of great value.

Our first group of students, then, has graduated. The world into which they have gone, however, is already different from when they were in college and we must ask the questions: "Have they merely acquired a knowledge of health facts or have they gained what may be described as an 'informed adaptability'? Are they mature people with the judgement and discrimination which they need in order to cope with uncertainty and change? Are we ourselves adapting our courses and recognizing that from year to year the classroom climate changes?"

I am reminded of the story told recently by a visiting lecturer of a certain philosophy professor who was scheduled for lectures at 9 a.m. each Monday. He bemoaned the fact that whereas five or six years ago all his students were on time and participated enthusiastically in his lectures, he now could muster only a handful of students at 9 a.m. and he added emphatically "It isn't my lectures that have changed!"

Perhaps we have not quite reached that stage, but we do need to evaluate our courses and, more specifically, to evaluate our objectives. There are a number of improvements that we would like to see introduced. One is a greater integration of science and non-science in our overall programme so that the one will illumine the other. To achieve this, we would need closer liaison between all participant lecturers in staff seminar discussions. A divided college campus, with buildings in two separate locations, a crowded timetable and a shortage of lecture and seminar

rooms are some of the practical difficulties in the way of such staff sessions. We would like, too, to see the present two-year health certificate course integrated throughout the whole four years of the students' college life, rather than offered as an end-on course in their third and fourth years. The students, too, would like to see greater recognition of their qualifications in terms of status and remuneration, since physical and health education are still struggling to achieve acknowledgement as academic disciplines in our education system.

This, then, is a brief overview of the main course offered to students preparing to teach health education at secondary level. Other more abbreviated courses include a health education method strand in the Diploma in Education course for graduate students with a university background in the behavioural or social sciences and a somewhat similar course of 66 hours for home economics students taking health as a supplementary method during their second and third years at college.

While arts and science graduates and teachers of home economics are contributing to the health programme in schools, the major responsibility for the implementation of the school health syllabus continues to lie with physical educationists. Problems of implementation include the pressures of external examinations allowing little time for non-examinable subjects such as health, staff shortages which, once again, result in the location of teachers to examinable subject areas and the reticence of some school principals to introduce a subject which could, to any degree, represent a source of controversy. Despite these difficulties, we have been encouraged by the keen interest shown in health lessons by children in those schools where the programme has been given the enthusiastic backing of the school principal. Because of the many problems, our college students need to recognize the need for a high frustration tolerance in health education. Attitudes are not changed overnight and this may not, in fact, be the least valuable lesson our students learn in their college days. Their understanding of mental health may well be put to the test in dealing with difficult school situations. If the staff shortage in schools demands that they teach some subject beyond their own immediate field, we may rightly deplore the deficiencies in our education system, but we shall also soon know whether or not our students have acquired an "informed adaptability". When faced with ethical ond moral issues at times of industrial unrest affecting the schools, our students should be better equipped to handle such situations if their studies in moral education and ethics have been more than a superficial intellectual exercise. The very problems facing our students in the schools, then, may well be for them a means of evaluating the objectives of the course they have undertaken.

Health, as we know, means "wholeness". In our curriculum design, we surely need to look at the whole area of professional responsibility which our students will undertake and help them develop attitudes which may be recognized as "healthful". The School Health Education Study and other such programmes remind us that basic concepts are what will remain when the peripheral detailed knowledge of facts has long since been lost.

Our college structure has not permitted the implementation of a programme completely identical with that outlined in the S.H.E. study. Yet it is hoped that our course may represent something more than what Whitehead described as "a rapid table of contents which a deity might run over in his mind while he was thinking of creating a world and had not yet determined how to put it together". The word "design" is easily overlooked in an inter-disciplinary approach to curriculum design but we cannot afford to let this happen in the field of health whose very meaning is "wholeness".

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The Need for Change in Concept and Emphasis of Health Education as Seen in a University Situation

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I HAVE REGARDED health education in its broadest terms as education and preparation for healthy living—physical, mental and emotional—and not just a method of maintaining bodily health. I shall say little about the benefits of existing programmes of health education. Much of what I will say will be critical of the present, at least in this State. Perhaps some has already been remedied and will become apparent to me, dealing with a university population in the next year or so. I am not suggesting that the present courses be abandoned but hope to spur health educators and educators generally on to greater activity for significant improvement in the health and wellbeing of the young who are still under their supervision.

I shall attempt to highlight some of the deficiencies and needs as shown from the interviews with university students by the medical officers of the Student Health Service in the University of Sydney in the last ten years. Perhaps I may be expecting too much from a health education programme, but at least in this country the field is fairly new, and the opportunities to help and influence the wellbeing of students are countless.

At the University of Sydney there are no formal lectures in health education, no compulsory sport or physical activity, no compulsory medical examinations. Except for the occasional lecture on a particular aspect of health relevant at the time, any health educating done is as part of a medical or psychological interview, and only when there seems to be a need for it. The eight doctors who work in the Health Service spend their days and sometimes their nights dealing with the problems of the largest collection of young people in this country, 17,000 of them on one campus. While much time is spent treating their sore throats, their hay fever, their acne, their injuries from motor vehicles, laboratory accidents or sporting fields and their other illnesses, much more time is spent

answering their questions about how to relate to people, how to cope with stress, how to maintain good health, how to attain adult attitudes physically, emotionally and mentally. These are not a sick group of young people, they are perhaps physically more healthy than most of the population except that their concentration on academic pursuits is often at the expense of physical exercise or social development.

The later years at school and early years at university are periods of rapid growth and change in one's identity from the obedient, dependent, accepting school pupil with little sexual anxiety or even awareness, to the critical, independent, questioning student frequently with much anxiety about, and interest in, his sexual role. There are six main areas about which I intend to speak and in which I feel health educators could play a more active role, namely, image of the self and ability to deal with feelings, interpersonal relationship, biology and sexual education, physical recreation and relaxation, ability to seek help before or when in difficulties, ability to make a decision when the facts have been obtained. Health educators are likely to be aware of the places where they may help with physical health or disease and so these have not been enumerated.

For the student who remains at school until the age of 17 or 18 and then intends to go or has gone on to tertiary education, the exacting nature of his study has probably meant that he has not done much thinking about his future identity or if he has, often he has had litle chance of experimenting with it. He is usually much less mature and worldly than his colleague who left school at 15 and has been working and receiving a salary for three or four years, who may be married or contemplating marriage, who can go out seven nights a week, and is not kept home by study or insufficient finance, who probably has his own vehicle and who, at work, is treated as an adult. The student has been forced to place his normal maturity in abeyance and to accept a dependent role when physically and psychologically he should be becoming independent. He is dependent upon his family or the State financially and his teachers and professors academically. His own social, intellectual, sexual and religious attitudes often have to be smothered for fear of his causing displeasure in those to whom he is responsible. It is little wonder that students frequently enter university with a rather shaky identity, an uncertainty about their future careers, and an anxiety about their own image.

Though the students described below are ones who consulted medical practitioners in the Health Service, many of them could have presented their problems just as appropriately to some of you gathered here. If you think of the situation you know and do not dismiss these as medical problems, my address will probably have more relevance to your particular fields.

While the student who feels that his body is satisfactory in size, weight, shape and appearance is the norm, there are many who have great anxiety about their bodies.

To mention just a few, you probably all know the obese person who is anxious about entering into any sporting activity where his body is exposed because he is embarrassed. He seldom swims because he is

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ashamed of his fatness, and if he can avoid other sports where he may have to use a communal changing room he will. But the thin person may be equally as sensitive about his scrawniness, or his hollow chest, or his lack of muscles. Two other groups who also avoid any communal activity where they can are the lads with big breasts or those embarrassed by the small size of their genitals. Until recently the very hairy person often did also, but now hair is fashionable.

Fortunately, in our culture, girls do not have to expose themselves so much to the gaze of their peers, so that body image except where excessively fat or where their breasts are very large does not cause them so much concern.

In the Australian culture, much is made of the image of the smooth male who is attractive to women, who has composure and confidence. He is often portrayed in cigarette advertisements. Some of our young men are frequently anxious about their sexual adequacy, their inability to talk to girls, or to have a steady girlfriend. In many of our schools segregated by sex, students have had little opportunity to talk to, to meet, or get to know in a natural way members of the opposite sex of their own age. This may not cause much difficulty for the young person who has siblings of the opposite sex and thereby meets the siblings' school friends, but with no siblings or with parents who do not make the opportunity for their young people to meet others there can be great anxiety about social sexual adequacy.

Recently the greater permissiveness of society and emphasis in mass media of sexual adequacy have caused more students to come to the Health Service concerned about their genital adequacy, or their hormonal normality. One's anxiety about identity may occur about family attitudes. There is often resentment about the need for continued dependence upon one's family. Except in Jewish and migrant families the authority of parents is often questioned. To honour, obey and respect one's parents is often seen as weak and peculiar. Some who feel that this is reasonable behaviour are concerned because their peers feel that they should be moving out and fending for themselves or taking anything they can get from their parents but not continuing any emotional involvement or concern for their parents' attitudes and beliefs. Students often come to the Health Service to talk about how they should treat their parents, or concerned about the unsatisfactory way in which their parents are living. There is an opportunity to lessen both the communication and generation gap for many, as they struggle with their own maturing identity, but they frequently need the help and support of someone outside the family.

Often related to the family experience are problems associated with interpersonal relationships. The student who has had difficulties relating to his father may have difficulties relating to his academic authority figures, or may have become excessively dependent upon his mother and so have difficulty making satisfactory relationships with girls, or may go around looking for suitable father and big brother figures, or make close relationships with his peers and be anxious about homosexuality. Fears of homosexuality and fears of inability to relate satisfactorily or inability to trust

anyone are frequent causes of anxiety among students and have disastrous effects on their work. Students with severe emotional deprivation have often compensated by great intellectual effort, and have often been successful. When they come to the realization that their effort cannot be sustained or that it is a poor substitute for personal relationships they may seek help.

Several emotions may cause students great difficulty. We all know how disruptive an infatuation can be to a person's study. But the loss of a boyfriend or girlfriend can be even more devastating. Students are of an age where fathers die of coronary artery disease and mothers die of carcinoma. For many the loss of a parent will occur during their last years at school or during university. Some are going to suffer the death of a school or university friend, perhaps by natural causes, frequently by sudden illness, but most likely by violence or traffic accident. The death of a parent or the death of a peer can cause a temporary threat to the feeling of "adolescent immortality". The stiff upper lip tradition which is still part of our male image does not help the mourning for a parent or a classmate.

Two other emotions which may worry them. Anger is not seen as acceptable. It needs to be controlled and not shown, or so many young people feel. Bouts of anger or hatred may submerge a young person in gloom, guilt and despair. Frequently they need to be told that anger is a normal emotion, that most people feel and have cause to feel angry at times but what is important is how one deals with it. Think of the passive aggressive and the sullen person who smoulders with anger, and in contrast the hot-headed and quick-tempered person who feels his anger, perhaps shows it, deals with it and quickly returns to his composure. Many of our students have been taught to be patient, long suffering, not allowing themselves to show anger when it was a normal feeling. Similarly, sexual awareness and feeling for many have been forbidden. Many worry about the quite natural sexual interest and arousal of late adolescence, feeling that they are being crude, dirty, evil-minded, lustful, oversexed or obscene. Frequently the sexual experimenting that occurred before or during puberty or the masturbation that occurred then or now, or the hatred and anger which they have repressed are first talked about by a student when he feels he has the confidence and understanding of a member of the Health Service. Sometimes the relief which follows the discussion is a joy to see, and he has made a friend! It is a type of confession, an exposure of his innermost feelings which have troubled him for years. Now it is no longer necessary to live a lie and hate himself.

In the last ten years, school education and the mass media have brought a new level of biological and sexual knowledge to the community. School children can talk quite knowledgeably about pregnancy, genetics, childbirth, abortion and contraception. Most university students know much more about these facts than their parents did at their age and may know more than their parents know now. But despite all this there are wide gaps in students' knowledge. Few have much awareness of the emotional involvement, the total involvement of sexual relationships. For

many it is a physical relationship which they feel they can enter without becoming emotionally involved or attached. Many do not consider the risks of pregnancy until it happens when they will then say "But we are too young" or "We are not able to have a family" or "I could not possibly spend the rest of my life with that person", "I do not love him (or her)", or "I do not believe in contraception because it is so detracting from a relationship, so calculated, but I could not possibly go through with this pregnancy even though I do not believe in abortion". We have had some people become pregnant, denying that they had ever had intercourse, even though when it was explained they agreed they had, because they thought it would be different from what happened. Some, because of inadequate description earlier, have thought that the hymen was a tough membrane to be ruptured with pain and much bleeding, and when this did not happen have thought that penetration had not occurred. One young man, after his first sexual encounter said, "If I have waited for 22 years for this, then I can afford to wait a lot longer and get on with my studies and be an academic; I had imagined it would be far more satisfying." Often our society has presented sexual intercourse as being the height of experience, not stressing that it is the whole person involvement, not the physical act, that is important.

For all their knowledge about biology and sexual reproduction, there is a dearth of understanding about emotional involvement, commitment and sharing which young people are only too keen to discuss frankly, feeling that their present training has not dealt with the most important aspects of this topic.

I shall say little about the need for physical recreation about which you are convinced. There is an increasing awareness among the medical profession and the community generally that physical effort by its increasing cardiac and respiratory reserves and for other gains is of value to our sedentary existence. When students who did not appreciate this at school became aware of the importance of a healthy body, they feel it is too late and they can do little about it.

There is a greater need for students who have poor physical skills to be taught to play sports and to learn methods of physical relaxation. At university they become aware of sport not only as a means of keeping fit, but perhaps more important, as a method of relieving tension and possibly aggression, or relaxing and of possible social interaction. It is unfortunate that this is often overlooked at school, and students who are not inclined or capable are not helped to attain a level of success and enjoyment at sport which would provide them with greater muscular control, more relaxation and ability to work as part of a team. Many a loner wishes he had this opportunity over again.

Sometimes the job of the Student Health Service is to make the path of the student in need of help easier. It may be by discussion with his parents, or with his academics, so that he is able to approach them without fear of rejection. Sometimes there is opportunity to bring a group of students together to discuss their problems, which may be academic, or social, or to do with home conditions. Frequently the student who is lonely and has no one from whom to get help seeks advice about a medical

condition and then mentions the cause of the medical condition. There are also problems such as insomnia, examination panic or pre-examination stress which can be dealt with, and the use of sedatives and tranquillizers may not be necessary if the condition can be discussed.

Last year we decided that any student who was ill or under strain could apply to do examinations in the Student Health Service. Some 50 students took advantage of this opportunity. Two epileptics who were frightened of attacks during their examinations completed their papers without attacks. Students with migraine or dysmenorrhœa who normally would have walked out and failed the examination were brought to the Student Health Service, treated, and when feeling better, completed their examinations. The bulk of students who did examinations in the Student Health Service were suffering from physical illness, but the thing they appreciated most was the relaxed atmosphere and the knowledge that if they were sick or needed medical care during the examination it was not a problem. Most of them were successful in the examinations despite their illness, yet several had not intended to sit their examination because of the illness.

Students come for information and advice. It is important that students coming to the Student Health Service be treated as responsible adults and given all the facts and then be allowed to make their own decisions. We are not there to protect students but to prevent them making decisions with inadequate knowledge. We are not *in loco parentis*, but are willing to help them if they wish our help. If they do not accept our advice or make the decision we feel they should, then there is nothing we can do. This is a learning situation, and they will never learn effectively if they are protected and prevented from experimenting. They may not choose our solution, but they will have thought and considered it before making their own decision.

As you will have seen, most of the time of the doctors who work with me is spent with one or two students at a time in a consulting room where they are free to ask questions, seek information or expound their theories about health and illness. Most of our time is spent in a one-to-one encounter where we have great opportunity to learn of the aspirations, ideals and problems of the young client, and they at times take advantage of the privacy, informality and intimacy to express anxieties and feelings which they have never dared express, or even at times think, previously. At such times subjects frequently brought into the discussion by the client are anxiety about a satisfactory personal identity, difficulties in relating or communicating with parents, anxiety about sexual adequacy, or uncertainty about sexual attitudes and behaviour, difficulties about relating to authority, problems about anti-social activities such as lying, thieving and sadism, inability to make adequate relationships. In most cases they do not wish to be told how to rectify these, they need to feel free to discuss them and then they will decide the next step.

Having told you at some length what university students see as their needs for satisfactory and healthy being, can you help? Well many of you will either be responsible for the curricula for health educators or will be providing health education in the schools. Much of the distress that occurs

in the university age group could have been lessened if it were tackled in the schools. I will mention briefly some of the areas in which I feel that students at school could get more help, and I see the health educator indirectly through other members of the teaching staff or directly helping students with these difficulties.

The student with sport difficulties, the class clown, the cheeky child, the class bully, the bright child with a poor work record, the fat boy, the attention seeker, the perfect child are some who may need help. While in the minor years at school health education may consist mainly of providing pupils with facts and ideas for healthy existence, I am certain that in the later years there is a need to provide small discussion groups which can discuss freely (with a health educator present to provide information) all manner of topics. At such meetings pupils can talk freely about what concerns them most. If a group does not introduce a topic some safe topics could be introduced by the health educator such as the attitude of young people to motor accidents, "Is smoking really a health hazard?", or "Is it necessary to smoke to show your maturity?" When a group feels secure it is likely that discussion about sexual relationhip before marriage (or generally), contraception, abortion, homosexuality, drug taking, will be discussed.

Other areas in which a health educator could be of help to many students would be dealing with authority, reasonable attitude to one's parents, attitudes to examinations, fear of illness, death and mourning, inability to relate to people, facing the unknown with anxiety is normal. In fact, the topics are endless.

The Inner London Education Authority attempted as an experiment by placing trained workers in schools to help pupils in the transition from school to learning and finding jobs. A small pamphlet, "Fifteen Talking", gives a brief report of a few of the discussions that took place with one of these workers. From my reading of the pamphlet, personal enquiry and subsequent observation in this country, I feel that it is a valuable method of health education. With school medical officers and school guidance officers and counsellors, physical educationists and health educationists make up quite a team of people working in schools for a high standard of physical and mental health and fitness.

One of the most important contributions a health education programme could make to senior students at school would be to encourage thinking about and aiming at good health, and free speech about any topic in which they are interested. The ability to communicate and discuss personal issues and problems will be of great advantage to them in their future progress to maturity, to deeper personal commitment and to marriage and family life.

A gathering such as this could go forth with new vigour in an attempt to remove the obstacles which prevent students maturing into healthy, happy adults. In some places it will mean criticism of long standing habits, perhaps decrease in academic work load, in some a change of emphasis, in some the change will have to be insidious and gradual. What are we all aiming for if not to provide an education for living, wholesome contented healthy living?

Measurement of Human Power Output

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SOME sports, such as rowing and cycling, require substantial quantities of mechanical power to be put forth by the athlete. It is of interest, therefore, to be able to measure with some degree of accuracy this mechanical power output.

The question may be considered in two parts:

1. What factors affect the production of human muscle power?
2. How can we measure the power output and what are the relative advantages and disadvantages of the various means of carrying out this measurement?

Of the many factors which affect the amount of power produced, perhaps the most important are:

(*a*) The duration of the effort.
(*b*) The mode of working, which includes not only the geometry but the kinematics of the motion being executed by the subject.
(*c*) The load being overcome.
(*d*) The environmental conditions existing at the time.

Unfortunately, these factors cannot be considered separately, as there is, to a certain extent, interaction between most of them.

Turning now to the question of measuring the power output, if the above mentioned factors are taken into consideration, we find that it is necessary to allow the subject to work in a way which copies rather closely not only the geometry but the kinematics of the motion executed during the particular sport and to absorb the energy released in a suitable manner. The work output of the subject is usually absorbed by applying a braking torque to a rotating member of the machine on which the subject is exercising. Several types of brake may be used and their characteristics are quite important. They fall roughly into three categories:

1. Viscous type brakes where the brake load increases with speed.
2. Friction brakes where the load remains reasonably constant irrespective of speed.
3. Constant power brakes where the load adjusts itself to the speed in such a way that the power involved remains constant.

Of these, the constant power brake would appear to be the simplest to use, as having adjusted the brake to a particular power value, it would only be necessary to record the duration of the effort to determine the total work output of the subject. However, such a brake has characteristics which do not match those of the muscles and instability can result.

The viscous brake, whilst perhaps the simplest in concept, requires the continuous recording of load and speed in order to determine, with any precision, the amount of work performed in the given time.

The constant torque brake, if it can be successfully engineered, is a satisfactory compromise as, apart from the measurement of the duration of the effort, it is only necessary to measure the total number of revolutions of the output shaft in order to determine the work output.

Other factors which should be taken into consideration in assessing work output are the mechanical efficiency of the transmission system and changes in kinetic energy of the moving parts of the ergometer resulting from any change of speed at the end of the test as compared with the speed at the beginning of the test.

The foregoing comments indicate that the measurement of the mechanical power output of subjects exercising in various ways is not quite as straightforward as it looks, and that care has to be taken if meaningful results are to be obtained from any experimental work undertaken.

University of Western Australia Test Battery to Evaluate Some of the Factors which Affect Human Physical Performance

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THIS presentation outlines the test battery being used at the University of Western Australia to evaluate *some* of the factors which affect human physical performance. The presentation discusses the procedures for testing, measuring and analysing the various test items and also discusses the rationale behind the selection of each test item. No attempt, however, is made to discuss results, as the collection of data is still in progress.

Some of the test items have established validity, others are still being investigated. The former group of test items is utilized:

1. To establish a pre-season fitness profile indicating the individual's weaknesses and training needs which then determines the nature of the training programme.
2. To evaluate the functional fitness of individuals.
3. To evaluate the individual's improvement during the training programme.
4. To evaluate individual or team changes as a means of re-directing the training programme should evidence of such a need occur. Such evidence may be in the form of a plateau or downward trend in the test scores.

The test teams, for which validity is still not established, are included for research purposes in an attempt to provide evidence to either substantiate or refute the value of such items.

This test battery, which was established by Dr. John Bloomfield and Dr. Alan Morton, has concentrated on the following factors:

1. *Body structure* as evaluated by various anthropometric measures, somatotype assessments and skin fold measures.
2. *Muscular strength* as determined by a battery of at least six tests the nature of which varies with the sport concerned.

3. *Power* as determined by the power lever and the jump and reach test.
4. *Reaction time and movement time.*
5. *Cardio-respiratory fitness* as determined by:
   (*a*) Vital capacity.
   (*b*) Hæmoglobin concentration.
   (*c*) Various aerobic power tests such as MVO_2, Astrand and Balke tests.
   (*d*) Resting and recovery electrocardiograms.
   (*e*) Resting and recovery values for the electromechanical lag (Q.I.H.S.I.).
   (*f*) Arterial blood pressure.
   (*g*) Brachial pulse wave recordings.

Predictive Indices in School Sport

C. LES COTTON

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THE aim of this paper is to demonstrate a simple and practical method of testing and evaluating fitness and aptitude for varying sporting activities in the school situation.

This paper will cover the following:

1. The object of selection—an activity for every child at school, in leisure hours and in adulthood to keep fit—success in sport resulting in less inferiority complexes and consequently better academic work and better school spirit—to help instill greater interest in school and life and lessen delinquency.

2. Methods of testing—pupil participation as testers maintains interest and is fairly reliable.

3. The tests consist of "the Cotton step test" with new evaluating graph for aerobic capacity based on end exercise pulse rate after four minutes; the vertical (Sargeant) jump; the ball throw, using a cricket ball or a table tennis ball and relating distance on a new "Universal Throwing Chart" with body and ball weight to give an individual "throwing index"; the vitallograph lung volume test using vital capacity and forced mid-expiratory flow as guides to performance and potential. In addition to this, age, height and weight are taken, from which the Index of Build and WHAT index are calculated, the latter being the weight, height, age trend which enables future stature to be determined.

3. The arrangement of the school timetable to facilitate the application of the testing programme in the form of "Integrated Sport". This enables three or four classes to be taught different sporting activities at the pupils' own assessed level, at the same time, by trained personnel. This may be done on a "one sport per term basis" for two to three years prior to participation and specialization in extramural school sport.

4. The follow-on programme—first-form pupils are tested during the first year and retested during subsequent years. The same procedure is adopted for each first form in ensuing years so eventually the whole school is tested.

5. The training of physical education teachers and students in test and measurement procedures and their application.

6. The evaluation of the results obtained to date and their significance.

Constitutional and Environmental Factors Affecting Performance in Sport

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THIS contribution will deal with conditions that are not pathological but rather variations from normal—those states that are not average but certainly not a disease.

Study of factors influencing performance in sport shows that psychological variants are paramount. These latter are dependent on an inborn state which enables drive to be supplied, effort to be maintained where necessary and often a tolerance to fatigue is inbuilt. Heredity and familial factors are concerned in the emotional needs for sport and these can be modified by social and environmental features including nutrition.

There is no doubt a modification of results occurs when equipment is defective, particularly in relation to temperature and atmospheric conditions. Sports in water and on dry land project their own problems as do team sports.

Body build varies greatly, particularly between the sexes and in different age groups and this militates against particular sports.

Coordination is essential for peak performance. This is often missing as in the case of ball-sense, thus restricting an individual field of sport.

Training has been considered a *sine qua non* for peak efforts. This involves the coach and athlete intimately and problems frequently arise in this area.

Recent work has shown a variation in metabolic pathways in obese persons. Can such a variation account for the differences in performances of individuals and in the same person from time to time?

Probably the most important factor in any performance is opportunity—without it, a result is impossible.

"Pathology in the Limitation of Performance"

JOHN SUTTON

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DURING competitive exercise the body depends on an integrated response from all its component organs for an optimal result. Thus it is not surprising that most disease processes will cause a significant deterioration in performance. Alternatively, defects in training, such as inadequate, incorrect or excess training and psychological factors, especially a decrease in motivation, can have a similar effect on performance as any pathological process.

In the majority of instances where there is disease, the pathology will be obvious, e.g., infectious diseases such as respiratory infections or gastroenteritis or trauma causing contusions, ligamentous injuries or fractures. By contrast, in the incubation stages of infectious hepatitis or glandular fever, the diagnosis can be difficult to determine. Similarly, early stages of primary muscle disorders, diseases of the hæmopoitic, respiratory, endocrine, cardiovascular systems, and the renal tract, can easily pass unnoticed except under the stress of exercise.

The following approach is recommended when a pathological process is suspected as causing a deterioration in the performance of an athlete: a full clinical assessment which involves a detailed history of the illness, together with a family history, details of past health, social habits—including tobacco, alcohol and drugs—and details of visits to foreign countries, especially tropical areas.

This is then followed with a thorough physical examination, including weight, temperature and urine analysis. Where practical, observation of the athlete during exercise is worthwhile.

At this stage the physician will usually have made a diagnosis. However, in a selected number of cases the physician will require further investigations such as blood counts, examination of stools or urine, X-rays, cardiography, chemical or hormonal assessments.

The use of exercise testing by means of a bicycle ergometer, treadmill or simple step test and the simultaneous measurement of relevant factors when indicated, such as serum potassium, blood sugar, serum insulin, plasma cortisol, electrocardiogram, etc., can be particularly helpful in a selected minority of cases.

LOOKING AHEAD

An Amateur Looks at Physical Education, Health Education and Recreation

SIR RONALD GOULD

President World Confederation of Organizations of the Teaching Profession

I IMAGINE the theme of your conference this year will be a challenge to all the experts I see arrayed before me this afternoon. To me, however, a mere tyro in this sphere, the theme had a paralysing effect. I could think of nothing significant to say, so as a mere amateur I propose to avoid all philosophic and learned approaches to physical and health education, and (since I have no option) to confine myself to simple questions well within my amateurish competence.

I must admit I do so with trepidation. For I cannot forget that when I turned for assistance to an American expert, I realized even more my inadequacy. For the expert declared that there were these approaches to physical education, the idealistic, the pragmatic idealistic, the dynamic idealistic, the naturalistic romantic, the modern naturalistic, the realistic, the dualistic, the contemporary realistic, the pragmatic experimental, the social pragmatic, the æsthetic, and finally the modern point of view. No doubt you understand all this, but I don't, so my approach this afternoon will be an additional one — that of the blundering, fumbling, muffing greenhorn.

Let me begin, then, by saying what I mean by physical education. I'm glad you do not use the term "physical training", for physical education means much more than hopping, skipping, running and jumping to develop the body. To me, it is the sum total of all the influences brought to bear on the child, consciously or unconsciously, in the school or outside, to promote healthy living. And just as the term "man" embraces woman, so the term "physical education" includes all exercise, sports, the teaching of hygiene, school and public medical, dental and optical services, school meals, well-lit, well-ventilated and well-heated schools and a good home and school environment.

The history of health education in England and Wales reflects the development of this concept. When in 1870 the State decided elementary

education should be available to all, they confined education to instruction in reading, writing and arithmetic only. No physical education of any kind was required.

Most of the changes have taken place in this century. They began with the introduction of drill, of marching, wheeling and forming fours. There were no organized games. Here discipline and fitness appeared to be the motives. Of course, the children of the wealthy in the so-called public schools had long enjoyed organized games. Indeed, the battle of Waterloo was alleged to have been won on the playing fields of Eton. The public schools had introduced gymnastics, too, mostly based on German ideas, and which involved the use of apparatus, the box, horse, rope, etc., which, I suppose, were too expensive for the children of the poor. Gradually, too, they imported from Sweden free-style exercises.

These two systems, these two traditions, were blended into one when grammar schools were publicly provided. Their physical education was derived from both elementary and public schools. Then ideas in the elementary schools began to change. Free-style physical education was introduced, music and movement developed, school games were organized.

Then, side by side with this, a school medical service evolved. Here the purpose was preventive as well as remedial. Doctors, dentists and oculists regularly visited the schools and treatment was provided. In more recent years psychologists have been appointed to help the retarded and the disturbed.

Then, during World War Two, a striking change in attitude took place. One of His Majesty's inspectors told me that he went into a school and discovered that a number of children brought lunch-time sandwiches which consisted of nothing but bread and Worcester sauce. This, he alleged, greatly affected Government thinking. True or not, however, the Government was convinced of the need to ensure that children should not suffer in a time of shortage. So school meals were started, and today every child can partake of a well-balanced meal at reasonable cost or in some cases at no cost at all. This was another great development.

And slowly the school environment was improved. In the early part of the 19th century the National Society of Education thought a barn might easily be converted into a school. Those days are past. School buildings now provide more daylight, more space, better ventilation and better sanitation; they are warmer in winter and have improved facilities.

Thus governments as well as teachers see health education as exercise, games, medical and dental provision, nutrition and good environment. They, and teachers, too, think health a priceless treasure.

"O health! Health! The blessing of the rich! The riches of the poor!" wrote Ben Jonson. "Who can buy thee at too dear a rate. since there is no enjoying the world without thee?" "A good wife and health are a man's best wealth" runs the proverb. "Health is better than wealth" runs another. "Look to your health", wrote Isaac Walton, "and if you have it praise God and value it next to a good conscience, for health is the second blessing that we mortals are capable of; a blessing that money cannot buy."

I suspect, however, that all these were referring to health as if it meant no more than bodily well-being. I suspect, too, that many governments and many teachers have the same idea. But what did Oscar Wilde say? "Those who see any difference between soul and body have neither." What does the Book of Common Prayer say? "We have done those things which we ought not to have done and left undone those things we ought to have done, and there is no health in us." And what did Laurence Sterne in "Tristam Shandy" say? "A man's body and his mind, with the utmost reverence to both I speak it, are exactly like a jerkin and a jerkin's lining—rumple the one, you rumple the other." Clearly, health should mean spiritual and mental as well as bodily well-being.

Yes, health to some may mean a man suffers from no illness or lethargy and he experiences a sense of physical well-being. But it should mean more—that body, mind and spirit are at one, all contributing to a sense of well-being, all making for wholeness. Franklin Pierce Adams summed it up nicely: "Health is the thing that makes you feel that now is the best time of the year."

Accept this, and it follows that the hypochondriacs and any obsessed with illness, real or imaginary, are certainly not healthy people. How could a hypochondriac be healthy if Goodman Ace was right when he wrote: "If you're a hypochondriac, first class, you awaken each morning with the firm resolve not to worry: everything is going to turn out all wrong." And how could Harold Ross be healthy, when it was said he gobbled pills like a famished chicken picking up corn?

No, to be obsessed with aches, pains and disease is unhealthy. It's also somewhat wearing for everybody else. All of us who have suffered from the sickness-obsessive will sympathize with Ogden Nash's opinion:

> "I once read an unwritten article by a doctor
> Saying there is only one cure for a patient's
> Female relative who has read an article
> A hatpin in the left ventricle of the hearticle."

All this adds weight to the point I made earlier. A man, woman or child is healthy when he or she can forget about ill-health and rejoice in the activity of body, mind and spirit. Accept this, and the sting is removed from some of the jibes, jokes and innuendoes about physical exercise and sport, which are all based on narrow assumptions about their nature. A truly healthy person can laugh at Beaumont and Fletcher's words:

> "As men
> Do walk a mile, women should talk an hour
> After supper: 'tis their exercise,
> For talking is probably necessary for a woman's health."

Or at Douglas Jerrold's "The only athletic sport I ever mastered was backgammon", or at Oscar Wilde's "I am afraid I play no out of door games, except—yes—except dominoes. I have sometimes played dominoes outside French cafes". Or at Ring Gardner's "The only exercise I get is when I take the studs out of one shirt and put them in another." Yes, exercises limited to talking, backgammon, dominoes or changing studs

may appear to jibe at all physical educators stand for, but if any or all of them contribute in any way to any form of physical, mental or spiritual well-being they are not to be despised.

Accept this definition of health, too, and see what it does for the status of the profession of physical educators.

For if health means well-being of body, mind and spirit, all teachers are engaged in health education. Maybe some teachers are engaged in some aspect that is largely intellectual and some on what is largely moral or physical. But all their work overlaps—the development of the intellect can't completely be divorced from the physical and moral, nor the moral from the intellectual and physical, nor the physical from moral and intellectual. But all their work, whatever its emphasis, contributes to the overall development of the child and his sense of well-being.

Accept this and note what it does for the status of physical educators.

Of course, most teachers regard their task as intellectual. Most were above average intellectually in school. Most followed academic courses in school, college or university. Most return to school to teach academic subjects. It is hardly surprising, then, that most teachers' attitudes are like cobblers—"There's nothing like leather." Almost unconsciously they tend to look down upon any non-intellectual activity. This has a corollary: they tend to look down upon those who teach the non-intellectual, or rather that with less intellectual content.

You think I'm exaggerating? Then why do teachers who used to be called cookery teachers or housewifery teachers now prefer to be called domestic science or domestic economy teachers? And why do teachers who used to be called woodwork or metalwork teachers prefer to be called teachers of handicraft? Are they not all, and rightly, struggling for adequate recognition? And in your own case, why has the timetable changed from drill to P.T. and from P.T. to P.E.? Is this not struggling for recognition too? And why is it that experts in domestic economy, handicraft and P.E. seldom become principals? Is it not because the intellectual is most greatly prized?

But if everybody said and believed and acted upon the belief that the purpose of a school was to produce well-rounded, healthy individuals, they would recognize that a hierarchy of the contributors to this end would be absurd. Thus the way to full professional recognition of P.E. is not quick or easy. We must convince people that schools are needed to produce healthy, well-rounded individuals, and every contribution to that end is important, and cannot fairly be graded.

Indeed, the more this question is closely examined, the more wide-ranging appear the responsibilities of the P.E. expert, and the more impossible it becomes to identify him merely with physical jerks. For has not health, rightly understood, a bearing upon intellectual development? Listen to the wise words of Robert F. Kennedy:

> Physical fitness is not only one of the most important keys to a healthy body; it is the basis of dynamic and creative intellectual activity . . . intelligence and skill can only function at the peak of their capacity when the body is healthy and strong; hardy spirits and tough minds usually inhabit sound bodies.

And has not health, rightly understood, a bearing on moral development? Is not physical education even in the narrow sense a moral duty both to oneself and to others? Many jokes suggest there is an easy way to health, but they are nonsense. "If I had my way I'd make health catching as well as disease", said Robert Green Ingersoll, but you can't achieve health by the easy way of catching it, but only by the harder way of a regular well-balanced diet, inner and outer cleanliness, regular exercise, moderation in all things and a clean environment, plus (if health means total well-being) satisfying work, well-organized leisure, security in home-life and constant contact with the things of the mind and spirit. A tall order, is it not? But "to be the best that I can be" is not merely the simple naive words of a child's hymn; it should be the object of all education and a moral imperative for us all. And that is why I endorse Herbert Spencer's stern words: "The preservation of health is a duty. Few seem conscious there is such a thing as physical morality."

Indeed, the more I think about this the more I see physical health demands the discipline which springs from intellect, conscience and will. "Oh", says Shakespeare, "it is excellent to have a giant's strength, but tyrannous to use it like a giant." "Samson with his strong body had a weak head", said Benjamin Franklin, "or he wouldn't have laid it in a harlot's lap." Yes, the body needs to be controlled by the mind and the will and the conscience. But if that sounds portentous, let me manufacture a few proverbs to prove my point. Don't keep drinking other people's health or you'll spoil your own. To reduce your weight, place both hands against the edge of the table and push yourself back. Ladies, if you want men to watch your figure, first watch it yourself. You see my point? Health is the product of physical, mental and moral discipline, and so you must be educators in the widest and most exalted sense.

With this in mind, I'd like you to consider for a while the phenomenon described as the World Cup. It is a question educators should examine. The World Cup games are obviously important. To bring together in competition the best professional players from many countries, to train them to the peak of physical fitness, to devise systems and plays to penetrate the opponents' defence, and to play before tens of thousands of spectators and hundreds of millions sitting before T.V. sets is obviously important and obviously news.

But is it really so important as the papers, radio and T.V. suggested? Wasn't the headline in one of our papers "Ball Over-Inflated" justified? Was it so important that back-page news had to be moved to the front pages, that scapegoats had to be found when teams lost, that results spelt national triumph or disaster, and that many believed that Mr. Harold Wilson's chances of success in the general election would be improved if England won and worsened if England lost? Don't misunderstand me. I was glued to the T.V. screen like everybody else. All that I am asking is—was it an interesting sporting spectacle or was it a matter for national shame and humiliation for the many and national glory and honour for Brazil? I personally think the World Cup got out of perspective, and if you suspect me of sour grapes, let me add Brazil, in my opinion, played skilfully, played fairly, and they won and deserved to win.

Worst of all, I think, when football or any other game becomes over-professionalized and over-important, someone has to be blamed for failure. So in England, Sir Alf Ramsay is put in the dock, asked to explain why we lost, asked weren't his tactics to blame, and does he think he is fit to manage English football in the future? He might obtain some satisfaction if he recalled the words of Al Forman, a National League baseball umpire: "I occasionally get birthday cards from fans", he said, "but it's often the same message. They hope it's my last." Or better still were the words of Harry Truman: "It's harder for a football coach than a President. You've got four years as President and they guard you. A coach won't have anyone to guard him when things go wrong."

Yes, I can't help feeling Sir Alf Ramsay and others like him are now asked to carry impossible burdens, and largely because highly professional sport has become far removed from games and recreation, far removed, too, from the idealism of Baron de Coubertin, who started the Olympic Games in the 90's, and far removed from his moral standpoint. For did he not declare: "The important thing is not winning but taking part!" How unfashionable and other worldly this sounds today, when to many the most important thing, indeed, the only thing, is winning, and winning at any price.

So, lest school games are similarly affected, let us remember what I stressed earlier, that as part of physical education they are contributions to the full development of all the faculties of children. They should be attractive to children not because they bring victory, money or glory, but because they are fun. Mother Goose's melody runs:

"Hey diddle diddle,
The cat and the fiddle,
The cow jumped over the moon,
The little dog laughed to see such sport,
And the dish ran away with the spoon."

The little dog, and no doubt the cow, the dish and the spoon found sport what it ought to be, a pleasure—and so should children.

"If all the year were playing holidays
To sport would be as tedious as to work"

wrote Shakespeare. His inference, too, is clear—sport is, or should be, fun.

Grant this, and certain consequences follow. If sport is fun, winning isn't all-important, and if winning isn't all-important, then bending and breaking rules, body-checking, hacking and maiming are ruled out. Oscar Wilde's view that "One should always play fairly when one has the winning cards" must be re-stated. One should play fairly all the time and with no exceptions. Thus, whilst one should play to win, play should be disciplined and fair, and winning and losing, even if we cannot like Rudyard Kipling treat these two as imposters, and equal imposters, at least do not become over-dramatized and over-important.

And thus sport at its best is a moral discipline, teaching lessons and forming attitudes of enormous importance in every aspect of life. And so you present here should recognize that you are not merely engaged in

strengthening bodies or in making them more perfect physical instruments, but in instilling a morality of enormous importance to man's well-being.

My friends, in this organization you have always had great leadership. Dorothy Ainsworth and Carl and Ray have all been outstanding in the techniques of physical education, but outstanding leaders of men and women too. And the same is true of successive presidents. They have all been believers in the "seamless coat of learning", and consequently have thought it right that physical educators should stand shoulder to shoulder with all other kinds of educators in the world organization. So in this, my last speech to ICHPER, let me warmly thank them all for the knowledge they have brought to their task, for the solidarity they have established, for the sacrifices they have made to serve others, and for the idealism which has inspired them and inspired us, too. Thank you all! I wish you even greater success in the years which lie ahead.

CLOSING ADDRESS

JANICE WRIGHT

Physical Education Teacher,
Sydney, Australia

It is with reluctance and a sense of sadness that I commence this, the closing address of the 13th Congress of the International Council on Health, Physical Education and Recreation, and the 8th National Conference of the Australian Physical Education Association.

For five days our geographic isolation has vanished because this Congress has brought the world of physical education to our doorstep. For the first time in the history of Australian physical education, we have been part of an international gathering in Sydney, New South Wales, and we have had the opportunity to meet, to listen to, and speak with colleagues from all over the world.

We all see the need for educators to travel, to exchange knowledge and to return to their own countries with more clearly directed energies. For these reasons it is my pleasure to thank you, who have travelled to Sydney to be speakers and contributors to this Congress—to thank you for your attendance and your participation.

Personally, I consider that the great benefit of this conference to Australians is the opportunity to view local problems in clearer perspective. A congress conducted on our own doorstep makes us realize that many of our problems are not just local problems—they are international—and the progress made in other countries has application in this environment.

Few visitors to Australia will realize the significance of this meeting to the host country and the hope it provides for an unknown future. Our local problems stem largely from two facts: we are a long way from the rest of the world, and physical education health and recreation are comparative newcomers to the Australian educational scene. From the outset, our early colonists were sports-loving people. The enjoyment that the early outback Australians—the shearers, drovers and bullock-drivers—took in displaying their masculine strength in contests which tested physical skill has continued to the present day. Our leading golfers, tennis stars, weight-lifters and squash players are often plumbers, grocers, concreters or wharf labourers by trade. In other words, sport has been the right of the ordinary person. Skill has been the determining factor. The right to excel in sport has not been a prerogative of birth or education in this country.

Initially, organized public education was concerned with the removal of widespread illiteracy. Sixty years after the country's foundation there were 12,000 children who received no formal schooling. Understandably,

the early schoolmasters concentrated on the 3 R's; sport and physical education, therefore, did not gain ready acceptance as an essential component of the educational process.

It was not until the beginning of the 20th century that war fears brought visiting drill sergeants into public schools to instruct cadet corps and teach children to march in unison. This had the effect of setting physical activity beyond the bounds of academic respectability and retarded the subject's development for many years. The trend was not helped by our first English-type universities which prepared an intellectual elite for the traditional academic professions and left activity to students' voluntary effort. Nor was it helped by the development of highly centralized State systems of education. But games did gain a foot-hold in secondary schools, because sportsminded teachers decided to start work half-an-hour earlier each day to provide time in the school week for a sports-afternoon.

It is only during the last 30 years that Australian physical education has made giant strides as the result of the total commitment of a few pioneer physical educators—one from Germany, one from Canada, one from England and a small number of native-born Australians, some of whom have been honoured in the course of this conference. This handful of people, working in different Australian States, confronted governments and university administrators, established professional preparation programmes, prepared courses of instruction and worked with community groups for the advancement of health, physical education and recreation. But these people were forced to do too much too quickly. They were not able to complete their work before death and retirement began to thin their ranks. Their philosophy and vision were only beginning to be dimly understood by administrators trained in the drill era, when Australia was confronted with an era of rapid educational change complicated by the rapid increase of school populations.

Severe financial problems, together with acute shortages of trained teaching staff have again placed our subject field in a difficult position.

Too many Australian physical educators, convinced that they are working in isolation with near-insoluble problems, seek solutions overseas. They go abroad for additional training. They mean to return, but, understandably, lucrative positions and good working conditions lure many away permanently. Australian physical education is currently suffering the same talent erosion that has beset Australian amateur tennis.

This Congress has come at a time when physical educators across the nation feel that our problems are overwhelming and peculiar to this country alone.

The Congress, and Professor Diem's memorial address in particular, have renewed our hope for the future. She has shown us that creating understanding and acceptance of physical education is an enduring quest. Whether we work in Cologne or in Sydney we must fight to synthesize our ideals and our practical goals. We must not be content to function as technicians or tradesmen. We must be efficient practitioners, capable of subjecting everything we teach and strive for to critical analysis. Current problems must be examined carefully and new solutions sought on the basis of knowledge, experience and sound reasoning.

To sort out the tangled skein of our future we need access to up-to-date information in all areas of health, physical education and recreation. In recent years it has become increasingly difficult to keep in touch with developments in our field within and without Australia. Within Australia our State professional association branches are hundreds of miles apart. Outside Australia the growth of knowledge is so rapid and so extensive that the enthusiasts who save for years to travel abroad so that they can study and observe, feel out-of-touch a few months after their return. For most Australians physical educators the written word has always been, and will remain, the main source of knowledge. But even the most avid reader cannot keep pace with the current literature in a single branch of physical education. Membership of international and local organizations does something to guide us to various sources of information, but the sheer number of associations often complicates the confusion.

There is no real substitute for the direct contact with men and women whose work in research is highly relevant to the programmes we conduct. But clearly, we cannot expect to have international conferences in this country as frequently as we would desire. Yet we *must* have access to the latest research findings in our field if our teaching is to be scientifically based. Realistically, we must face the fact that we can only undertake a measure of research in this country—we lack basic facilities.

Australian speakers at this Congress have demonstrated our ability to conduct research programmes relevant to the school situation. But until finance is readily available for the establishment of well-equipped research laboratories we will lag behind Germany, America, England and Canada in many branches of physical education research. These laboratory results must be translated and tested in the practical situation before we can make use of the findings which close the gap between theory and practice. For these guide-lines to action we must rely on information from countries where staffing and timetable provisions are more generous, where trained personnel are more abundant. This raises yet another obstacle to progress—the language barrier prevents most of us reading the studies published in Scandinavian, Japanese and other languages. So the need for translated document becomes very evident.

What is needed is a central reference source—a switchboard we can contact for information in any area of physical education.

Almost every person in this assembly would welcome access to one central source of up-to-date research findings which provided opportunities for cooperative action and exchange of ideas. Cynics may condemn the concept of an international reference centre as idealistic and impractical, but this is not the case. The resources needed already exist via a multitude of international and national associations. ICHPER, FIEP, FIMS, IDC, ICS, AAHPER, PEA, APEA, CAHPER, BOA, CCPR, and a host of others have already done a certain amount of work in their own specific areas of interest. The ordinary workers in the field are often so bewildered by the sheer number and the overlapping function of these organizations that they consider the associations are too remote, too impersonal and their services are too random to be helpful.

Basically, all that is needed is the energy and the finance to organize and mobilize the resources which already exist. Time does not permit any detailing of the mechanics involved in the operation of a central reference centre, but the existence of UNESCO and WHO, and the beginning made by FIEP in the preparation of a world manifesto for physical education offer substantial proof that world action is possible if enough intelligent people see the need for it, and are broadminded enough to draw together the strands which already exist at national and international levels.

Unless we have full details of new endeavours in countries where physical education is well established, the newer and the poorer members of the physical education family will slip further and further behind in knowledge. The gap is already too great. We have no wish to trail sadly along in the wake of more advanced countries, rediscovering the lessons they have already learned.

Enough has been said to show that, to Australians, this meeting is bright with hope for the future; we know our own problems and we work continuously to solve them. However, the Congress was not conducted in Australia to provide a panacea for local ills; so what has it all meant?

If I may summarize the significance that the excellent sessions conducted during the Congress period hold for everyone present, it becomes evident that health, recreation and physical education are all concerned with particular facets of the same contemporary problem. Whether we hail from England, Africa, America or Japan, we are faced with the need to educate men, women and children to live successfully in overcrowded societies where the stress-filled pressures of work and competition detract from the quality and length of living. As workers in health, recreation and physical education we are all concerned with identical issues—degenerative diseases and mental illness stemming from the pattern of twentieth-century life.

The steady reduction of physical exercise, as it exists among the super-civilized, motorized, automatized and T.V.-watching populations of the West, has long been cited as a causal factor in heart disease. Forward-thinking countries have initiated the establishment of organized, mass-reconditioning centres and programmes for the seemingly healthy, yet quietly degenerating sedentary adults. This is being practised on a large scale in West Germany by insurance companies and big industrial concerns with graded outdoor programmes in the Bavarian Alps and follow-up, all-year-round home exercise programmes. The Ford Motor Co. claims two year's more work from its executives through supervised, constant-yet-light physical exercise. Are we doing all we can to educate the individual and the executives of large organizations to compensate for our predominantly sedentary lives and so retain our national health and vigour?

The strain of sophisticated and highly competitive living is already taking its toll in the guise of mental illness. Only slowly have we come to recognize the effect of activity on anxiety—the release of energy in constructive and aggressive activity. Are we really making our best effort to bring this home in realistic terms to the general public?

We have all witnessed the boredom and dissatisfaction of young people born into an increasingly mechanized and urbanized world—as evidenced in widespread drug-taking, riots, protests and "hippie cults". The sociologist, Mays, strongly proclaims that the maturational and social phase which we call "youth" presents social problems which one would be foolish to deny or understate. Are we in step with our young people's apparent desires to make independent decisions and exhibit freedom of choice of pursuits? Surely the decision to adopt physical education and recreation as part of their functional scheme will only be taken if they deem it valuable. Are we guiding the younger generation sufficiently to such a premise by providing stimulating and interesting programmes at the earliest age possible? Are we making their need for movement an *interest?*

All of us are familiar with the spectacle of thousands of sports fans packed into grandstands, cheering their favourite team. The accelerated development of professionalism in all areas of motor activity is depriving the common man of his right to constructive leisure and relaxation through action because commercial enterprise is taking control of playing areas and the mass media "sell" spectatorism to a gullible public.

Whether we work in the area of physical education, of health or recreation we *know* the potential our subject has for the resolution of pressing universal social problems. We know that our subject field is part of mankind's hope for the future.

We have all tackled the problems in our own ways in our own countries; but with limited success. It is possible that we have *all* worked in isolation and as a result we have failed to make sufficient impact on our governments, our industrialists, our local communities, on men and women and young people. Until we work more closely together we are unlikely to progress where we have already failed.

As this Congress draws to a close we can decide to go back to our own little niches and struggle with our own little problems, or we can decide that we now have the nucleus of a world team capable of transcending difficulties of distance, politics and ideology. Our problems will not be resolved overnight, but the quality of this Congress has been so ripe with promise for a world affinity in physical education that I am convinced we can provide for a traffic of knowledge, of resources and of people between our countries.

With full realization of the difficulties of this proposal, I am formally requesting that the members of this Congress support a recommendation to ICHPER executive for the establishment of a resources centre which will provide an efficient system of communication designed to help physical educators study, travel and work with professional purpose.

1970 ICHPER Resolutions

THE ICHPER-APEA Congress 1970 urges those responsible for the administration of education in all countries at all levels to recognize the following resolutions emanating from the Sydney Congress 1970.

1. Health, physical education and recreation are allied and closely inter-related fields and should be coordinated in the best interests of the community.

2. Physical fitness is a basic human need, and health, physical education and recreation programmes are specifically designed to achieve a desirable standard of physical fitness.

3. Provision must be made for professional preparation at undergraduate and postgraduate levels of health, physical education and recreation educators.

4. There is an urgent need for the provision of specialists in the fields of health, physical education and recreation in all elementary and secondary schools.

5. The appointment of health, physical education and recreation educators to teach the physically and mentally handicapped is essential.

6. Adequate facilities are basic to the implementation of programmes in schools, teachers' colleges and universities.

7. There is a growing need, through increasing leisure time, for the provision of professionally trained leaders in recreation along with adequate facilities for community recreation.

8. Education authorities should ensure that health, physical education and recreation enjoy a professional status in keeping with their vital contribution to the quality of modern life.

9. Health, physical education and recreation can play a significant role in educating the community in the necessity for controlling environmental pollution.

10. The ICHPER-APEA Congress expresses the hope that responsible authorities in all countries will come to appreciate the virtues associated with improving the situation as it exists in health, physical education and recreation, and will come to appreciate the value of setting out on a quest for quality in these areas and of persevering with positive endeavours to reach new horizons in these areas of health, physical education and recreation.